MARINE CORPS Gazette

JUNE, 1947 30c

This Month's Cover

MARINES have patrolled many streets in their time, but none more fascinating than those in China. Maj Houston Stiff depicts two MPs strolling along what might be a *hutung* in the native quarter of any North China city. For more on China duty turn to page 18 for LtCol James D. Hittle's *On the Peiping-Mukden Line.*

THE MARINE CORPS GAZETTE

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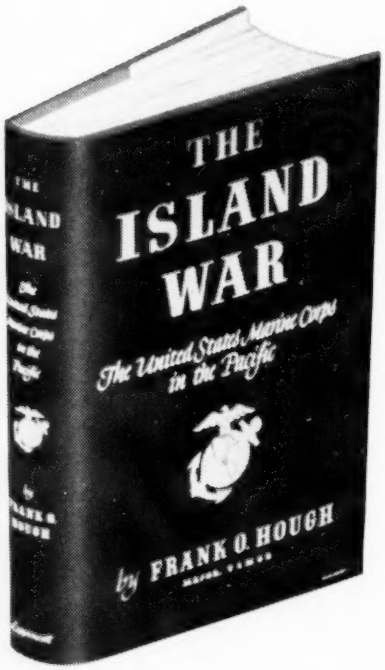
The Marines in World War II



by Frank O. Hough
Major, USMCR

Only a man who had been with the marines when they hit the different beaches in the Pacific could have written this history. Maj Hough had this qualification plus experience as both a writer and a historian. He was granted access to secret and confidential Marine Corps' documents and supplementary material. He covers in his book the actions of the marines from the opening of the war until the Japanese surrender.

The battle for battle story of the part played by the United States Marines in the winning of the war in the Pacific is presented clearly and accurately in *The Island War*. While not an official history, this book was prepared under the auspices of Headquarters, Marine Corps, and the author's research is based on official files and records. Step by step the book follows the marines as they move across the Pacific, island by island, to victory.

"This is not the story of individual men but of a certain large body of men bound together by the closest of all masculine ties; that comradeship born of the shared peril and hardships of battle . . . What those men did, how they did it, and what they went through . . . comprises the theme . . . for as far as the Marine Corps is concerned the total results far exceeds the sum of its component parts."

The Island War is illustrated throughout with photographs and maps which make graphic the developing situation in the Pacific. A glossary of terms and abbreviations, a Marine division's order of battle, and a chronology of the Pacific War are extras which add to the completeness of the book and increase its value as a reference text.

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PASSING IN REVIEW

BOOKS OF INTEREST TO MARINE READERS

Brave Garrison . . .

THE STORY OF WAKE ISLAND—Col James P. S. Devereux. 252 pages, illustrated. Philadelphia: J. P. Lippincott. $2.75

Just what happened at Wake is a rather hashed-over affair; most accounts have been colored by the hysteria that characterized the opening days of the war. Now, after five years, comes a calm, dispassionate narrative by the man who should know as well as anybody what actually happened: the commander of the Wake Island Detachment.

It is the story of unremarkable men who under stress did remarkable things.

Col Devereux, who is too well known within the Corps to require further characterization here, makes no claim of absolute accuracy. The book is an account as he *remembers* it, assisted by the recollections of others and such sketchy records as exist. It is simply written and easily read—a fine adventure story. Military readers may feel that the tactical and technical details of the 14-day defense have been neglected. From a professional viewpoint this is true, but then this is one man's narrative and not an official action report of the Wake Island defense.

Some legends—for example, the faked "Send us more Japs" dispatch—are knocked in the head, but the simply-told truth is as impressive as the discredited myths it replaces.

The illustrations include a good tactical map and a sheaf of 13 photographs. There is a foreword by playwright Robert E. Sherwood, and, as an appendix, a roster of the Wake Island defenders.

EHS

The Doughfoot's War . . .

YANK: THE GI STORY OF THE WAR—The Staff of YANK, the Army Weekly. 320 pages, illustrated. New York: Duell, Sloan & Pearce, Inc. $5.00

The title of this book tells you what to expect—no discussion of tactics or technique, nor any picture much bigger than could be witnessed by a pair of eyes. Call it *gee eye* view (if you don't mind corn)—a view which was on the sour side from the beginning, and which, on review, seems a little stale. Bernstein, O'Neil, Scott, Schwartz—these are the names of some of the spokesmen in this book. The GI, they say, was "often bored; he wasn't always brave; most times he was scared . . . had learned the ache of loneliness, the ache of exhaustion, the kinship of misery. He had learned how to sleep in the mud, tie a knot, kill a man." And so on. It appears that the staff of YANK viewed the war as a pretty grim business, which is understandable, yet it is curious that the Marines' comparable publication—*Semper Fidelis* (reviewed in the April GAZETTE)—has a much lighter tone.

The GIs you meet in this book always seem to be exhausted, or cold, or miserably wet; they just had an arm blown off, or were splattered by their buddy's brains. They barely managed a chuckle at the plight of the man who can't find the pro station during the early hours at Salerno. They didn't have any fun: and to a marine, this GI view may seem a trifle distorted.

The Marines, incidentally, are covered briefly on Tarawa, Saipan, Iwo, and Okinawa, but there's nothing here that you haven't seen before.

The format of the book is excellent. There are many drawings and photographs—some of the latter are so dramatic in subject matter and composition that they might almost have been carefully lighted and posed—which, of course, they were not.

The publishers of this book are pretty ambitious for it: they think it will help prevent future wars. Certainly it shows that war is a very unpleasant experience for the people who fight it, and may possibly instill a prejudice against war, in any shape or for any reason, in its readers. That war is unpleasant is not a particularly original thesis: that this is a propitious time to dwell on the horrors of war is a debatable matter. In any case, the royalties of this book go to the War Department, which sets up a strange sort of balance.

HS

The Story of Wake Island

by Col James P. S. Devereux

THE commanding officer of the Marine detachment at Wake recounts the fast-moving story of what actually happened during the 14-day defense of the island. Non-technical, it is essentially an account of the marines who made up the garrison of the hard-hit atoll. Stripped of myth and told without pretense, it is a remarkably readable story.

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The GI Story of the War

THIS is the war as reported by correspondents for *Yank*, the Army weekly. This capably edited collection covers chronologically the war from the doughfoot's viewpoint. Both the European and Pacific theatres are included and it is illustrated with some of the war's best pictures. *Yank* is an excellent companion piece to *Semper Fidelis*, the recently published anthology of Marine combat writing.

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GAZETTE BOOKSHOP

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Naval Victory . . .

THE BATTLE FOR LEYTE GULF—C. Van Woodward. 244 pages. New York: The Macmillan Co. $4.00

The Battle for Leyte Gulf is an unofficial "official" report, written by a former naval officer and published by a commercial firm with the apparent full approval of the Navy but without its official stamp. This type of historical writing is that favored by the Navy and follows the plan already projected by Prof Morison, who has published his first volume of a many-volumed operational history of the Navy in World War II under the same conditions. The advantage of this method are obvious: the author has access to naval documents; he can assemble and write his history with a large freedom that allows him a latitude of interpretation and form that would probably be impossible if he were operating under strict official guidance. The disadvantages are not immediately apparent. The public has every reason to trust completely the narratives of Prof Morison and Prof Woodward, both competent historians; there is certainly no advantage to be gained by the Navy's *imprimatur* of approval. In fact, the Navy has waived the right to an official history of World War II—and this waiver is probably to its credit. Until, for example, an official history is written of the Battle for Leyte Gulf, this work of Prof Woodward must be assumed to be definitive.

The book is complete; the author at this date can lay out clearly the complete strategy behind the battle and explain carefully the naval tactics envisioned both by our forces and those of the Japanese. Once this picture was sketched in, the writer faced the difficult task of presenting clearly the actions of four different task forces of the Japanese and the counteractions taken by three forces of our fleets, and describing almost simultaneous actions in the air, on the surface of the sea, and under it. Finally, the author had to take this formidable mass of technical detail and lighten it with narratives of men fighting and admirals maneuvering, reaching decisions not as Olympians but as fallible, though highly-trained human beings. Fortunately for the author, the battle took a highly dramatic form, its climax coming when the still powerful Japanese task force attacked the helpless escort carriers, when Adm Halsey swung his battleships through a 180

degree turn and drove to the rescue.

Basically, the story is one that was enacted again and again in the Pacific, on the islands and on the seas: the Japanese armed forces stubbornly ready to die in pursuit of a plan opposed by American forces, sometimes technically far more powerful, sometimes inferior in numbers and equipment, but always with a prejudice in favor of living. The difference discernible in this battle is that the Japanese plan, though desperate, was by reason of its boldness, a shrewd one; it very nearly succeeded. The plan was to drive down on Leyte Gulf from the north and south, sacrificing possibly the southern group that had to push through the narrow straits south of Leyte, but to draw away from the mouth of Leyte Gulf the main body of our fleet by offering in the north the last carriers of the Japanese fleet—now without sufficient planes or pilots to equip them.

The southern Japanese force was destroyed, but the victory left Adm Kinkaid's ships almost without ammunition—they had been loaded for shore bombardment; Adm Halsey did attack the carriers coming from the Empire, and the force swinging in from the north of Leyte was opposed by only a group of escort carriers, converted merchant ships for the most part. In sight of his goal, the Japanese admiral hesitated, then retreated and returned to the inner seas. Almost within his gun range had been the shores of Leyte Gulf, before which lay helpless supply ships; on which were the landing troops still inadequately supplied with both ammunition and food. The American victory, though overwhelming, was not altogether of our own making.

The author has written coolly and dispassionately; he has skillfully sifted and used what must have been a mass of evidence and details, the results of many interviews. The only flaw in the book—and it is a necessary one—is that the three chief admirals remain remote figures; they cannot as yet speak directly of the anxieties or agonies of command decisions.

By way of quite gratuitous comment, it should be pointed out that the Marine Corps should have in its files the reports of Marine Detachments on this battle. Gathering these reports and collating them might provide an interesting addendum to the accounts of the battle.

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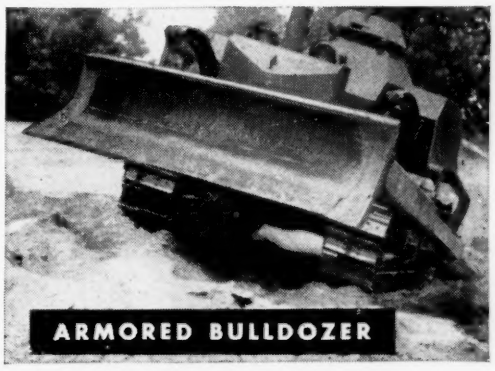

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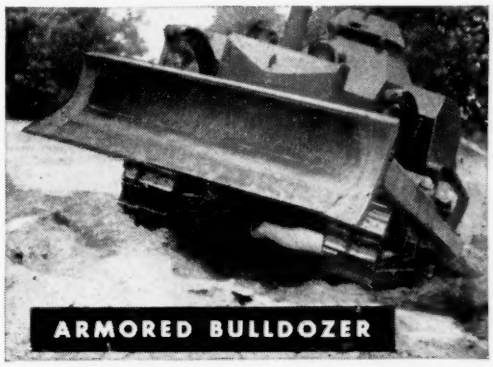

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The Battle for Leyte Gulf

by C. Van Woodward

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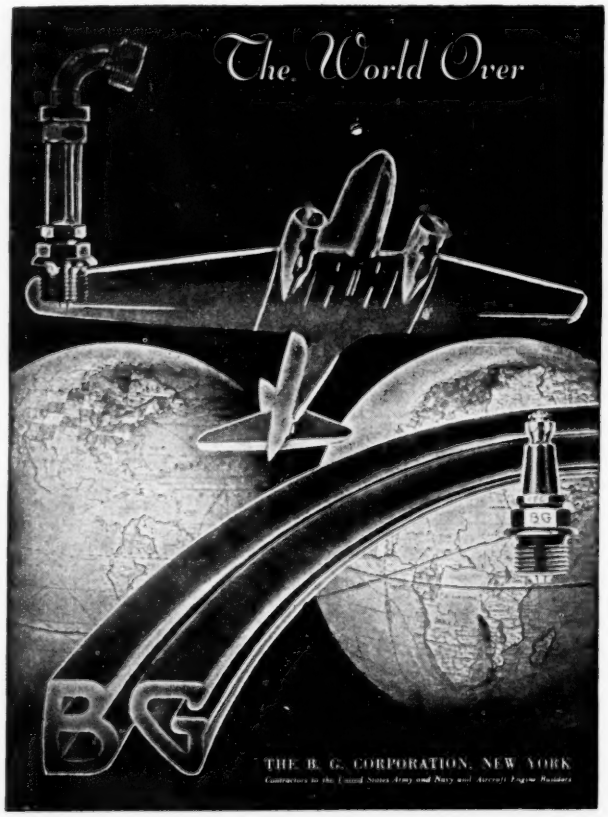

THE MARINE CORPS
THE PROFESSIONAL MAGAZINE
FOR UNITED STATES MARINES

Gazette

JUNE 1947

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This Month and Next

THIS MONTH marks the introduction of a new feature, a department consisting of news letters from the organized reserve units. This feature will be continued as long as the material received warrants. Next month the following reserve units will be highlighted: 6th Infantry Battalion, 11th Engineer Battalion, Fighter Squadrons 121 and 215.

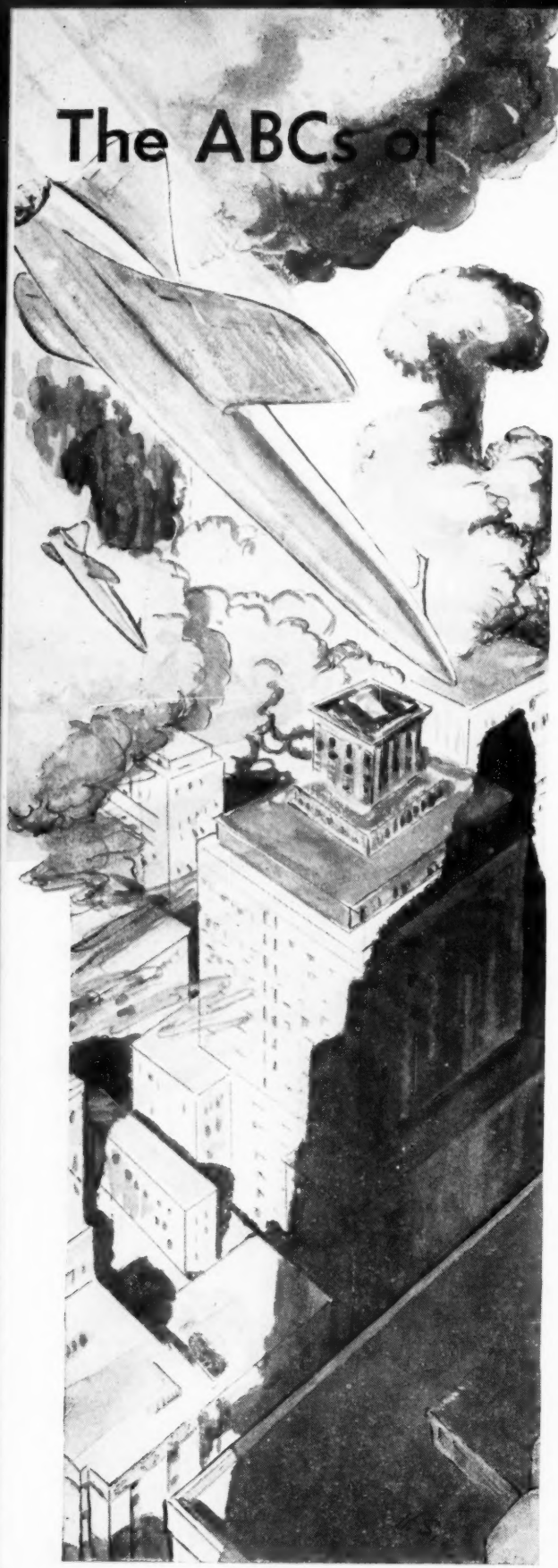
LTCOL JOHN CORBIN III fears that the Corps is growing less salty. Next month in *The Thin Line of Tradition* he pleads for the return and preservation of some of the fine old customs and language of the Corps.

BEFORE we get back to the peacetime officer promotion system based on seniority and selection, LTCOL ROBERT E. CUSHMAN feels that the prewar type of professional examination should be drastically revised. He has several suggestions to make in next month's *Does He Qualify?*

LTCOL ROBERT D. HEINL, JR., comes to the defense of the much-maligned assault signal company in July's *Minority Report on (J)ASCO.*

CAPT JOHN DECHANT covers the air war in the Palaus and at Iwo Jima in the July installment of *Devil Birds.* In *The Marines in the Pacific War,* FLETCHER PRATT moves the war north to the Marianas. In the second and concluding part of his *The ABCs of Guided Missiles,* LTCOL KEITH B. MCCUTCHEON takes up the tactical considerations involved in their use.

The ABCs of Guided Missiles



By LtCol Keith McCutcheon

A STUDY OF MILITARY HISTORY INDICATES that in every war there is at least one new weapon introduced; usually its appearance is so late in the war that its overall effect on the war is not of paramount importance, but it is usually this, or these, new weapons that exert a tremendous influence on the succeeding war. As a case in point take World War I in which the machine gun was probably the outstanding weapon; in that war gas, tanks, and airplanes were introduced. In World War II both of the latter were employed in mass and their part in winning the final victory is well known.

While the tank and the airplane were winning acclaim for themselves a new weapon appeared —the guided missile. If a third world war is to be fought, this weapon may usurp the place of the airplane. Whether it does or not depends almost entirely on how soon the war takes place. So called "pushbutton" warfare (a very poor term) is not with us yet; guided missiles, however, are around the corner, and it behooves every marine to devote some serious thought to the effect of such new weapons on the particular specialty of his Corps, namely, amphibious warfare.

Before weapons can be used tactically it is necessary to understand their capabilities and limitations. It is the purpose of this article to present an elementary summary of the technical and military considerations that should be kept in mind with regard to the present state of guided missile art. A short summary of the German development in this line will be presented first, as it is believed that a historical approach to the subject will stimulate interest.

Early German experiments date back as far as 1925 but it was not until the fall of 1943 that any operational use of missiles was made. Initial attacks were made against merchant shipping in the Mediterranean theater with an air-to-ground, rocket-propelled weapon known as the Hs-293. This was followed by the Fritz X, a high-angle type bomb controlled by radio or wire. The warhead was armor-piercing and

Part I: Technical Considerations: Methods of guiding pilotless aircraft have been divided into three broad categories: (a) course seeking; (b) target seeking; and (c) command systems. Interception and defense systems are being greatly improved

weighed in the neighborhood of 2500 pounds. Successful use of this missile was also obtained against our amphibious forces at Salerno.

These weapons were only a part of the some one hundred and thirty-eight missiles, modifications, and accessories that were developed by the Germans. By far their greatest effort was in the fields of long range bombardment and antiaircraft defense. The best known weapons were in the former category and were the V-1 buzz bomb and the V-2.

In the relatively short period from mid-June to early September of 1944 over 8000 V-1s were launched against England. Almost a third landed in the metropolitan area of London where considerable damage was inflicted; over 5000 persons killed; 23,000 houses destroyed; over 1,000,000 more damaged. These figures in themselves are not truly indicative of the overall effect of the V-1. Nearly 1500 allied aircrewmen were lost in attempts to destroy the launching sites. In addition, the defensive effort on the part of the British to neutralize the attacks has since been determined to exceed the effort put forward by the Germans to develop the weapon.

The V-1 only carried about an 1800 pound explosive charge at speeds of 400 miles an hour. The V-2 carried only slightly less weight of explosive at supersonic speeds as high as 3500 miles an hour. Detection and countermeasures were practically impossible so the surprise effect of the V-2 was much greater than that of the V-1. The V-1, however, still exerted a greater psychological effect because of the attendant noise in its approach. Over 1000 of these larger missiles were launched at London with considerable damage inflicted to property and casualties totalling 25,000.

Despite the damage inflicted and the defensive effort required, however, these weapons had little effect on the overall European campaign. The Allied continental offensive had been successfully initiated and the German air force had been literally knocked out of the sky. Launching sites had been destroyed, communications were disrupted, and technical personnel to operate and maintain the weapons were insufficient to accomplish the task. If, however, and it is a pretty big "if," the Normandy landings had been delayed, or if the V-1 and V-2 attacks had commenced a year earlier, the outcome of the European war would have undoubtedly been delayed and perhaps seriously affected.

It is hoped that these brief remarks will stimulate some respect for the possibilities of these new weapons. This much can definitely be said: supersonic missiles have been used operationally for distances of 200 miles. The missing link in the German development was in suitable guidance and control of the missiles after launching so in the strict sense of the word they were not true guided missiles but artillery projectiles with extended range. Their accuracy was of the order of 10 per cent of the range; in other words those launched at London were possibly off 20 miles at the target in deflection. For anything but metropolitan targets this error is of course entirely too much. With improved guidance and control

LtCol Keith Barr McCutcheon *was commissioned in the Marine Corps upon graduating from Carnegie Tech in 1937. After several years of varied duty, he attended post graduate school at MIT, which he completed in 1944 with a MS degree in aeronautical engineering. Overseas he served as operations officer of MAG 24 throughout the Philippine operation.*

Returning to the States, he spent a year as an instructor in the aviation section of MCS at Quantico, then was assigned duty with the Bureau of Aeronautics in the Pilotless Aircraft Division, his present billet. This is his fourth Gazette *article.*

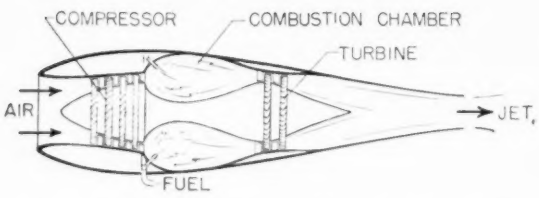


Figure 1. GAS TURBINE JET—a gas turbine drives an axial-flow air compressor mounted on the same shaft, thus providing a steady supply of compressed air for continuous combustion. Efficiency is higher than for aeropulse units, but lower than for conventional engines at present airplane speeds. Used where high speed and rate of climb are more important than efficiency and long range.

equipment, however, these same weapons would begin to rival artillery of all large calibers.

Guided missiles, like other artillery and aircraft, have for convenience been grouped into certain basic categories. The common designation indicates the location of the launching device and the target. The simplest list includes only four: (1) surface-to-air, (2) surface-to-surface, (3) air-to-surface and (4) air-to-air. From a naval viewpoint, however, the following breakdown is more logical:

(1) Air-to-air
(2) Air-to-surface
(3) Air-to-subsurface
(4) Surface-to-air
(5) Surface-to-surface
(6) Surface-to-subsurface
(7) Subsurface-to-air
(8) Subsurface-to-surface

The subsurface-to-subsurface is not included because it is a torpedo.

This classification is not enough to adequately identify a missile. In order to have a general picture of any particular type it is necessary to know the following: type of propulsion, type of fuel system, means of guidance and control, speed-range, method of launching, and type of warhead. Each of these further identifying characteristics will be discussed in some detail in the following paragraphs. The treatment will be non-technical, but certain terms that have come into general usage will be defined as they are basic and fundamental for an understanding of the overall art. These characteristics combined with weight and size information will fairly well describe any particular weapon.

At the present time missiles may be powered partially or entirely by gravity or by some form of jet. It is the latter form of propulson that is of the most interest. Jets as we know them now can be classed as rocket, turbo, ram, or pulse. Each of these has certain outstanding characteristics of its own. All except the rocket depend upon atmospheric air for operation; the rocket carries its own oxygen internally and for that reason is the only present type power plant for probable use at exceedingly high altitudes where the lack of sufficient oxygen would prohibit the use of the other three types of jets.

A schematic view of a turbojet is shown in Fig. 1. The essential parts include a diffuser, compressor, combustion chamber, turbine, and exhaust nozzle. The diffuser is comparable to a scoop for picking up the air and converting its relative velocity into pressure. The compressor does further work on the air prior to its mixture with fuel and combustion in the chamber. The resulting high pressure mixture then passes through the turbine and out the exhaust nozzle. The only function of the turbine is to provide power for the compressor. Forward motion is the result of this increase in momentum of the air through the power plant and the net thrust is proportional to the difference between the exhaust gas velocity and the missile velocity. The term thrust has become standard in comparing power plants of the jet type because the horsepower of a jet type engine changes with variations in speed.

A ramjet is pictured in Fig. 2. This engine is also known as an "athodyd" which is a contraction of the words "aero-thermodynamic duct." This is a technical appellation signifying a tube type engine operating on principles of aerodynamics and thermodynamics. A more common reference to the same is to be found

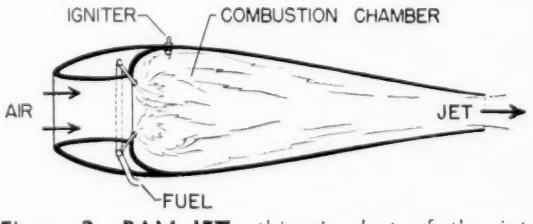


Figure 2. RAM JET—this simplest of the jet propulsion devices uses air to burn the fuel. Combustion is continuous. Efficiency is low at moderate speeds because combustion pressure never exceeds the ram pressure created by the forward velocity of the device. It must be launched at high speed by auxiliary means.

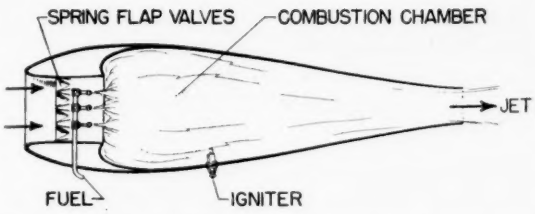


Figure 3. AEROPULSE—combustion takes place as a series of explosions. The combustion chamber is filled with air which flows past the spring flap valve; then fuel is injected and ignited. The explosion closes the valve and forces the burning gases rearward. As the pressure drops, the valves open and the cycle is repeated. Efficiency is better than that of the ram jet, but is still low.

in the name "flying stovepipe," a rather apt description.

The ramjet operates on the same principles that govern for the turbojet except it is a simpler device because there are no moving parts. The essential parts are reduced to three in number: diffuser, combustion chamber, and exhaust nozzle. The function of the compressor in the turbojet is replaced in the ramjet by the motion of the engine through the air to build up suitable pressure by the "ram" action of the air in the diffuser. This leads the ramjet to have great promise in operating at speeds above that of sound, but it also limits the operating altitude because of the decrease in air density and lack of oxygen. A ramjet, however, requires a booster to get it up to speed in order to function; no speed, no thrust.

The third jet-type engine which is likewise limited is the so called pulsejet, resojet, aerojet, or intermittent-jet. These names are all used to refer to the same type power plant. As the last name indicates, the jet in this engine operates intermittently instead of continuously as in the turbo and ram types. Between the diffuser and combustion chamber there is a bank or grill of valves which operate alternately because of the pressure build up in the combustion chamber. These valves are opened to admit the ram air and are then closed due to the pressure rise during combusion. The cycle may be likened in general terms to the ordinary operation of the intake valve in an automobile engine during the suction and compression strokes.

It was an engine of this type that powered the German V-1; a diagram is illustrated in Fig. 3. The operating speed-range of this type of jet appears to be somewhat lower than that of the ramjet and for the present will probably be limited to the region slightly below the speed of sound.

The German V-2 was powered with a liquid rocket type of power plant. Rockets in general are very promising for guided missiles. They are complete units in that no outside air is necessary for their operation; if they had to they could operate in a vacuum.

A rocket motor consists of a combustion chamber and an exit nozzle. Through chemical reactions large volumes of high temperature gas are produced in the combustion chamber and then discharged through the nozzle to increase their velocity and thus produce thrust. The fuels employed to produce this gas may be either of the liquid type or the solid type. Solid type fuels are usually carried as an integral part of the combustion chamber because of the difficulty otherwise encountered in introducing them into the chamber. Liquid type fuels, on the other hand, may be carried in separate fuel tanks and fed into the combustion chamber by means of pumps or by pressure maintained on the fuel tank. Fig. 4 is an example of a typical liquid rocket type of jet motor.

Thus far the term "guided missile" has not been defined. One acceptable definition is that it is a missile which after launching is directed toward a target by other than natural forces. This leads naturally to a discussion of the type of guidance that can be given to a missile in order to accomplish this mission.

The problem of guidance may be compared to that of ground control intercept tactics of fighter aircraft. When a target has been detected on a radar scope the fighter direction officer must vector or guide his friendly fighter to intercept the enemy aircraft. This involves tracking both the enemy and friendly aircraft, computing the

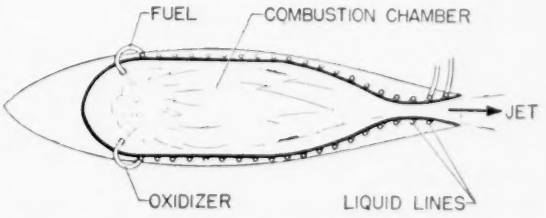


Figure 4. LIQUID FUEL ROCKET—fuel and oxygen are contained as liquids. Combustion is controlled by regulating the flow of the liquids. The rocket may require auxiliary equipment for pumping and metering the liquids. Other rocket type motors may burn solid fuels.

necessary course and speed of the friendly fighter to effect an interception knowing the course and speed of the enemy, and then directing the friendly by transmitting the computed information. This is a continual process and depends upon a number of factors and especially on the evasive tactics taken by the enemy.

THE ESSENTIALS INVOLVED in this ground controlled interception resolve into three in number: (1) tracking of the enemy and friendly aircraft; (2) computing the necessary interception data; and (3) transmitting the computed data to the friendly fighter. These same essentials are present in the guidance of a missile to a target. Both the target and missile must be tracked; the tracking data must be computed into directions for the missile; and the computed directions must be transmitted to the missile and corresponding corrections applied to the control surfaces.

The ways and means for carrying out the above vary; one early classification for generalization set up four basic systems: (1) preset, (2) command, (3) along-the-way, and (4) homing.

In the first type the action of the missile is established before launching and can not be changed later. Both the German V-1 and V-2 were of this type.

Direction or guidance by command is camparable to ground control of piloted aircraft. In this system the controls within the missile are operated by directions which originate outside of the missile. Such directions may come from the ground, a ship, or a piloted aircraft. The control and guidance of the drones used at Bikini or those used for fleet target practice are examples of this type of control. Measurement and computation of target and vehicle may be either manual or automatic with automatic control becoming mandatory at higher speeds.

In guidance along-the-way the missile carries equipment which detects deviations from some sort of established path through space. The path may be established by radio or radar waves or some other means. Beam riding by aircraft and instrument let downs are examples of this system; in a missile corrections for deviations from the desired path would be made by instruments automatically.

Homing systems depend upon the ability of the missile to detect some property of the target and to follow it. The attraction of light for insects or the natural tendency of a magnet to seek the north are fundamental examples of homing. The native ability of a pigeon to find its way home is perhaps too well known to even be mentioned.

A more up-to-date nomenclature is to have but three broad categories: (1) course seeking, (2) target seeking, and (3) command systems.

The former includes all forms of navigation that enable a missile to locate and follow a course to the target. Included in this category are three well recognized radio-radar methods: beam riding, circular, and hyperbolic.

Beam riding is comparable to present day radio range techniques and depends on following the signals emanating from one transmitter. Circular systems require two separate transmitter stations with missile location being determined by the intersection of two bearings, one to each station. The hyperbolic system also depends on two ground stations. An example is the *Loran* navigation method. *Loran* ground stations, in pairs, transmit pairs of radio frequency pulses; by measuring the time difference between the signals received from two sets of ground stations the position is determined. Fig. 5 illustrates this method.

Target seeking and command systems are essentially the same as the homing and command systems previously mentioned.

An easy way to determine the type of guidance system is to remember that there are two questions that must be answered in order for a missile to hit the target: first, "What is the path to the target?"; second, "what corrections need to be applied to follow that course?"

If both of these questions are answered in the missile it is a target seeking system: if they are both answered outside of the missile, either in an aircraft, on a ship, or on the ground, it is a command system; if the first question is answered outside of the missile and the second one within, it is a course seeking system.

IN A MEDIUM RANGE or long range missile these basic systems may be used in combination for various legs or phases of the entire flight. Guidance may thus be divided into launching phase, mid-course, and terminal. The launching and mid-course are readily adaptable to course seeking or command, and terminal guidance can be executed by some kind of a homing device or target seeking system.

Practically all natural physical laws are being

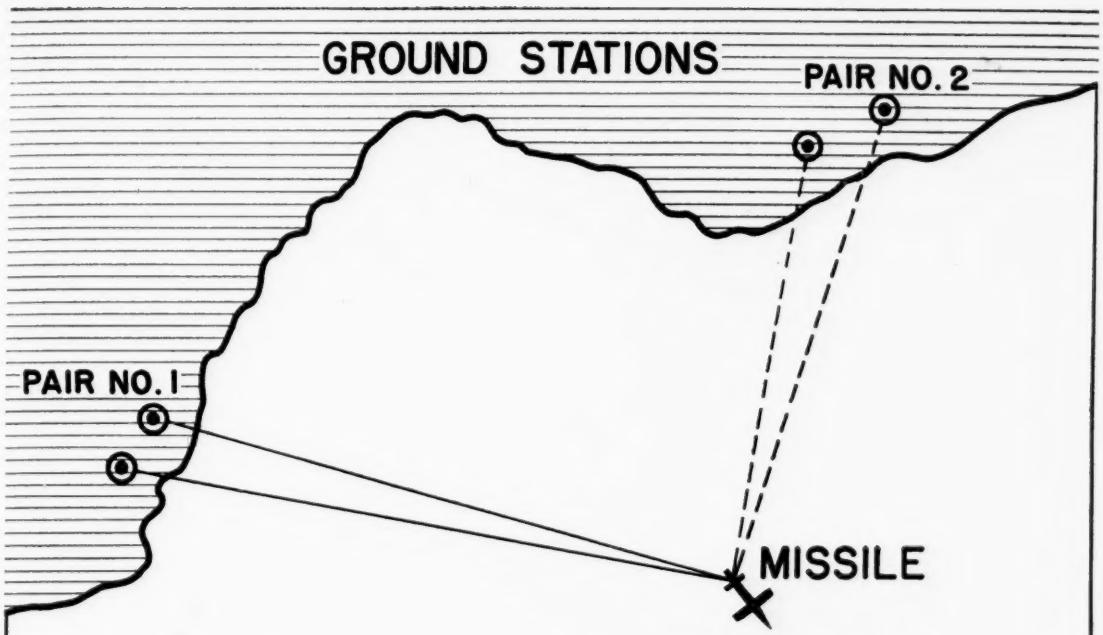


FIGURE 5 LORAN NAVIGATION

investigated to determine their suitability for guidance systems. Television, heat, light, and sound all offer possibilities; magnetic, electric, and gravitational fields also are being considered.

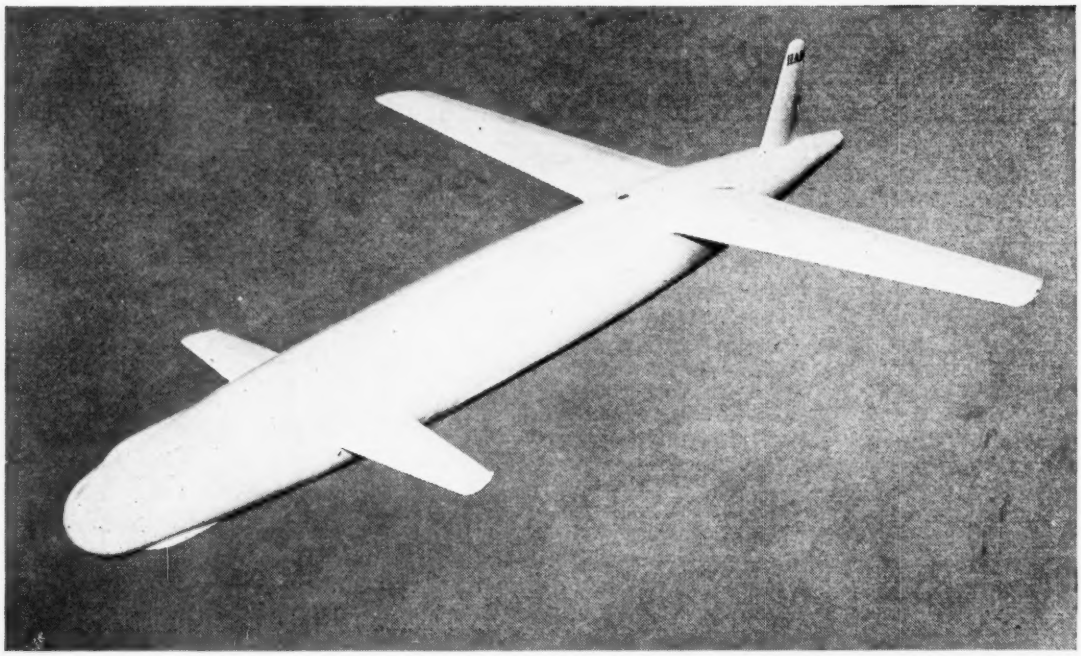
As was stated earlier it was the guidance problem which the Germans had not adequately solved when they first began the operational use of missiles. It is this problem which is the heart and soul of the entire program and the first nation which arrives at a workable and practical solution to the problem will be in the driver's seat.

Throughout this article reference has been made to missiles travelling above the speed of sound. The recent practice of rating aircraft speeds in terms of knots or miles per hour is rapidly passing out of existence. A new reference standard has come into common usage; the speed of sound is now generally taken as the datum plane. Vehicles travelling slower than sound are termed subsonic; those travelling at speeds above sound are supersonic; and the speed-range extending a hundred miles or so either side of the speed of sound is known as the transonic region, a barrier that still presents difficulties, especially in operation of piloted aircraft.

In as much as sound varies in its speed of propagation dependent upon temperature variation, a dimensionless ratio known as Mach number has become prominent. This number is merely the ratio of any speed to that of sound. For example, an airplane travelling a little over 500 miles an hour is travelling with a Mach number of about 0.7; a missile with a speed of 1500 miles per hour has a Mach number of about 2.0.

For subsonic speeds the science of aerodynamics has built up adequate research and test procedures and equipments; for supersonic speeds there is much to be learned. The reader is probably already familiar with the so-called transsonic barrier or wall and the compressibility shock effect which accompanies it. The study of supersonic aerodynamics is being reflected in the design of new aircraft and missiles; swept-back wings, smaller aspect ratios, and different arrangements of control surfaces are already being tested in flight.

In the conventional aircraft (either piloted or pilotless) the control surfaces are in the rear; a vehicle in which the reverse is true is known as a tail first or "canard" type of structure. Another term that may be employed is "cruciform." This indicates a structure where four control surfaces or wings are placed at right angles to each other at the same circumference



The rocket-powered Gorgon IIA. This canard type airframe is unlike conventional aircraft as it has the main wings to the rear of the horizontal control surfaces.

of the vehicle. The rocket-motored Gorgon IIA is a missile of the canard type.

GIVEN A PILOTLESS AIRCRAFT or missile that is aerodynamically designed and suitably powered for supersonic flight and provided with guidance and control equipment, the problem still remains of launching the vehicle. For this purpose some form of catapult, platform, ramp, or rail may be used. Furthermore, this launching equipment may be installed ashore, afloat, or in an aircraft. Most systems for this purpose can logically be classified as either a catapult or a launcher. The difference between the two is determined by whether or not the launching power is supplied by the launching installation or whether auxiliary means are required. If acceleration is supplied entirely or in part by the mechanism it is a catapult. Launchers do not accelerate the missile; booster rockets, JATOs, or accelerators are required. Modifications of present catapults used for aircraft or some adaption of artillery provide examples of the former type. Launching by means of auxiliary booster rockets from a ramp or rail is illustrated by the presently used wing rail launchers for the five-inch HVAR rockets used on modern aircraft of the Corsair model.

The ultimate purpose, of course, of these missiles is destruction. They are being designed as instruments of war. To be complete they must have a warhead. Such armament may be of a conventional type such as standard aerial bombs, torpedoes, or specially designed shapes of now-known explosives or they may take the form of an atomic warhead. There is much room for flexibility in the design of warheads because the shape of the explosive charge need not be streamlined itself in as much as it is carried in an aerodynamic vehicle. Such freedom in the design of the shape of the explosive will permit full exploitation of the advantages of shaped charges, subject of course to the contour and general configuration of the carrying vehicle.

This is applicable also to atomic warheads. It takes little imagination to visualize what havoc could be wrought by a long range, supersonic guided missile carrying an atomic warhead. If such weapons do become realities it will be necessary to reorient our defensive tactics. No longer can we permit or allow a percentage of attacking aircraft (piloted or pilotless) to escape our defensive effort. To permit just one such vehicle to enter our defenst might well spell defeat of the entire cause. Defense must be one hundred per cent!

To be concluded

In Brief

A *giant water tunnel* designed for testing underwater equipment is being planned by the Navy. A water version of conventional wind tunnels, it will have a capacity of 130,000 gallons. Jobs planned for the proposed tunnel include experiments on improved body shapes for submarines and torpedoes and the development of superior propellers.

A *helicopter* which can be strapped to the back of a paratrooper in place of a parachute was disclosed recently. Having four counter-rotating blades, each 12 feet in diameter, the helicopter is powered by a two-cylinder, 25 horse-power engine. It is controlled by a throttle that dangles over the user's shoulder.

Experiments are being made to determine the practicability of flying *jet planes from aircraft carriers.* The Phantom recently experienced no difficulty in taking off from the *Franklin D. Roosevelt.* The Phantom, being light, took off successfully, but it is doubted that heavier models will be able to operate with ease on a carrier until a faster rate of takeoff acceleration is evolved.

The next American effort to break the British-held *world air speed record* of 616 mph is expected to take place this month. The attempt will be made at the Muroc Army Air Base in California with a modified Lockheed Shooting Star, the P-80R. The British are waiting for the Americans to break the current record before making another record attempt.

The House Committee on Armed Services reported favorably on legislation authorizing the Secretary of the Navy to assign *officers of the line* to supply duty only. The bill provides for assignments to assistant quartermaster and assistant paymaster duty from the rank of captain to colonel. The existing law provides for the assignment of majors through colonel.

No cases of the so-called "*rare Oriental diseases,*" reported to be so common in China, have broken out among the dependents of Marine and Navy personnel living in the Tsingtao area since the establishment of a family clinic by the Navy last July. The clinic provides medical care for 350 American citizens and also examines servants before they are hired by the servicemen's families.

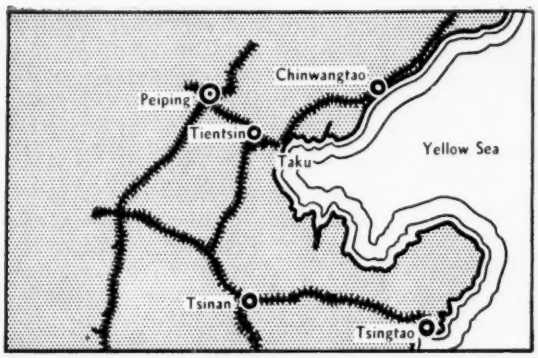
A *Marine photographic team* is currently making visits to many Marine bases in the Atlantic area, from Newfoundland to the Canal Zone. The purpose of the trip is to prepare moving pictures and still photographs to aid marines in their selection of an overseas station. The cameramen will make a complete pictorial record of activities at these bases, the tour being extended, in some cases, into nearby towns to depict marines on liberty.

Dischargees need no longer worry about reporting to their local draft boards upon being discharged. When selective service went out the first of April, regulations requiring servicemen to register were discontinued. Draft cards are thus relegated to a souvenir status.

All *men under 21* years of age who desire to re-enlist or extend their current enlistments must now have the written consent of their parents or legal guardians according to Almar 35. This new order went into effect on 1 April 1947 and will cause a change in "shipping-over" policy for men under the required age without proper papers.

Three Marine basketball teams finished up in the top four of the all-Navy basketball tourney held at Great Lakes 26-28 March. With a Navy team from Pearl Harbor taking first place, the rest of the semi-finals were all Marine. Second place went to the 2d Marine Division from Camp Lejeune, third to El Toro's "Flying Bulls," and fourth to Quantico's "Devil Dogs."

On the Peiping-Mukden Line



By LtCol James D. Hittle

IN THE FALL OF 1945 MARINES OF THE III Amphibious Corps moved into North China. The 6th Division landed at Tsingtao on the Shantung Peninsula. The 1st Division went further north with the bulk of the division being assigned to the Tangku, Tientsin, and Peiping area. Other elements of the division moved north to guard the mines and bridges on the Peiping-Mukden Railroad.

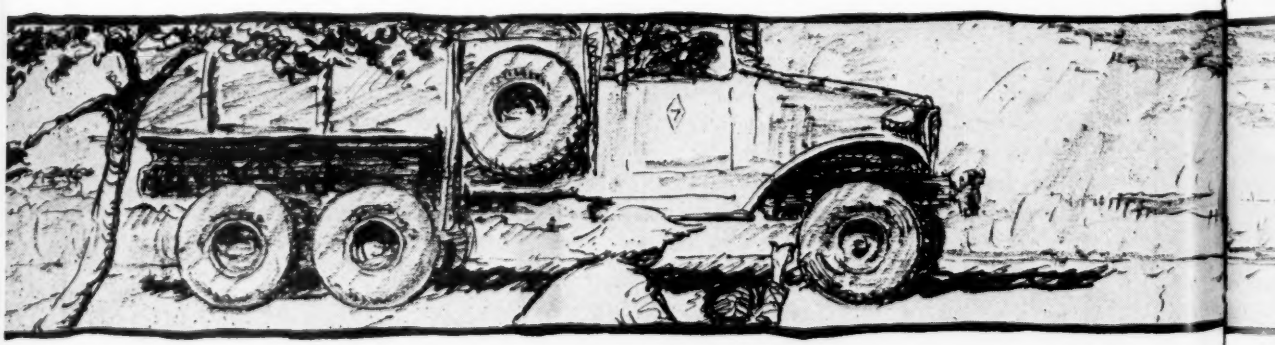
That railroad, following the defeat of Japan, was probably the most important stretch of track in the world. It carried the coal from the mines of Tang Shan and Linsi. Stoppage of coal movement would have resulted in serious economic and social repercussions in all of North China. Also, and even perhaps even more important from the strategic viewpoint, the Peiping-Mukden was the only land link between North China and Manchuria. Prolonged disruption of traffic would have isolated Manchuria, so important to the reconstruction of the Chinese nation, and could have well created a crisis of world wide significance.

As the marines moved northward along the tracks toward their assigned areas, they passed into the heart of the great North China plains, one of the richest agricultural and coal mining areas of the Orient.

Accomplishment of their mission required regiments and battalions to assign relatively small detachments to numerous bridges and railroad stations within an assigned zone of responsibility. This resulted in an extreme dispersion of the forces, and this in turn resulted in many problems and situations that had to be solved by other than orthodox means.

Considered from the standpoint of tactical dispositions and resulting supply requirements, track duty presented the infantry regiments and battalions with unusual problems. The dispositions of units on the tracks represented about the ultimate in lineal dispersion. On one occasion during the winter of 1946, the 7th Marines, with headquarters at Peitaiho Beach, consisted of five infantry battalions plus service and artillery attachments. This reinforced regiment was stretched for more than 100 miles on the Peiping-Mukden line. In addition to bridge guards and station details, the regiment maintained garrisons of close to battalion strength at the Tang Shan and Linsi mines.

With the regiment possessing such an extended



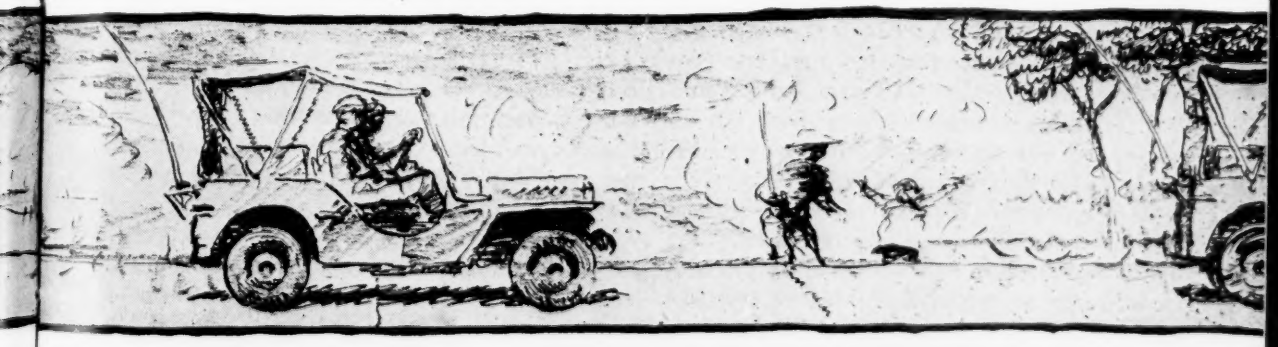
Strung out over 100 miles of track, well-armed detachments of the 7th Regiment, 1st Marine Division, guarded the important coal-carrying rail line that passed precariously through the battleground of the Communist - Nationalist Civil War

zone of responsibility, the battalions on the track were in turn assigned zones of great length. The 2d Battalion, 7th Marines, was extended over a zone extending from the bridge at Lan Hsien to the ancient walled city of Chang-Li, a distance of about 30 miles. Within this zone the battalion maintained seven bridge guard detachments and four station details. (Four to six marines billeted in the principal stations to check and report in the movement of coal trains and to facilitate the movement of Marine traffic along the railroad.) Decision as to the strength of each bridge detachment was based upon such factors as importance of the bridge, troop capacity of the detachment buildings, proximity to adjacent detachments, and the ever-present military problem of available personnel.

Bridge guard strengths varied considerably. The smallest detachment totaled one officer and 18 enlisted at a relatively small bridge only half a mile from the track command post detachment, capable of providing support if necessary. The largest single detachment within the battalion zone was at the bridge of Lan Hsien, on the Luan Ho River. This detachment consisted of one officer and between 85 and 100 enlisted, depending on availablity of personnel. The comparatively large size of the Lan Hsien bridge guard resulted from the fact that the bridge was the most important single point on the entire Peiping-Mukden Railroad from Tientsin to the Manchurian border. Double-tracked and resting on huge concrete buttresses, the bridge was 740 yards in length. Destruction of other bridges along the track would naturally have resulted in disruptions of rail service, but serious damage to the bridge of Lan Hsien would have meant the virtual isolation of Manchuria at the very time when the central government was struggling to establish control over the Manchurian areas so vital to the future of China and the stability of the Far East.

In addition to the usual individual weapons, the Lan Hsien detachment was armed with two 81mm mortars, two 60mm mortars, four water-cooled machine guns, and four air-cooled machine guns. Personnel and weapons were distributed between the central compound on the base of a hill overlooking the entire bridge, and four guard towers, two of which were sited at each end of the bridge.

Guard towers were the principal local defense installations constructed along the tracks by the Chinese. These towers were circular structures of brick or stone, walls 18 to 24 inches thick, usually two stories in height, with firing ports in the walls. Basically, such towers were little different than the block houses of American frontier days. Yet, the towers furnished protection from the bitter winter weather and small arms fire. About six to eight men could be housed in such towers. Thus each tower had adequate personnel to maintain round-the-clock guard watches, eliminating the need for providing reliefs—particularly at night—from the main detachment installation, usually a compound or quonset hut often as much as 1000 yards from the guard tower. Tower guard details received their meals in vacuum containers from the detachment galley. Usually guard tower personnel



were relieved at least weekly and returned to the central detachment installation.

COMMUNIST FORCES preferred to move and fight at night. It seemed to be a deliberate procedure for Communist bands to attack Nationalist installations located close to Marine track detachments. The obvious intent of such tactics was to draw marines into the action in such a manner as to make it appear that the marines were actually fighting on the side of the Nationalist troops. On numerous occasions when Communists attacked installations in the vicinity of Marine bridge detachments a few timely mortar flares served to light up the countryside and put a quick end to the attack. The 81mm flare had a particularly salutary effect on night attacks, and proved to be a pacifying agent more effective than any cease-fire order from Nanking or Yenan. Not only would the 81mm flare light up the countryside and stop a fire fight, but it would be a source of native conversation for weeks to come. That 275,000 candlepower illuminating shell that made night seem like day was, in the opinion of the Chinese peasants, about the most spectacular sight on the North China plain since Genghis Khan rode through the area at the head of his Golden Horde.

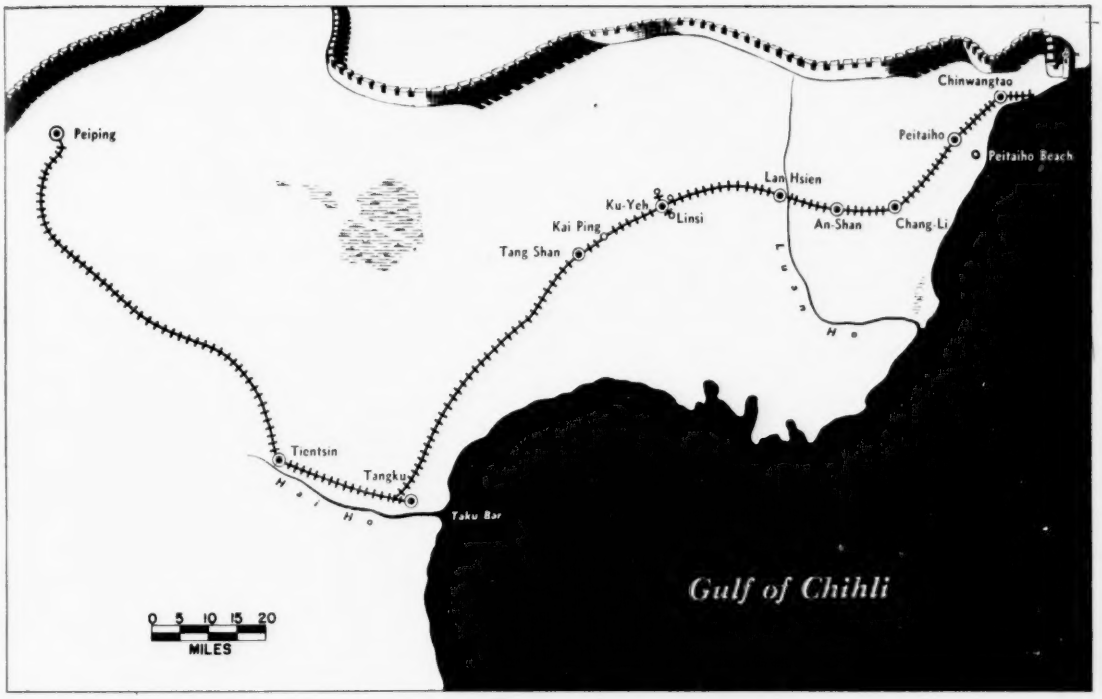
WHAT BRIDGE GUARDS LACKED in numerical strength was largely compensated for in increased fire power. Practically all track detachments had more than the usual proportion of BARs and heavy and light machine guns. It was found advisable to have at least one 60mm mortar at each bridge guard, as the mortars were necessary for night illumination, as well as for supplementing the defensive fires.

The unusually high proportion of machine guns and mortars resulted in a personnel and training problem. At the time when demobilization was progressing at top speed experienced weapons men were leaving the organization at a similar rate. Thus, as an interim and realistic procedure, training programs for selected but inexperienced weapons personnel sought to provide "operators" rather than *qualified* weapons men. Training, of necessity, was short, but intensive, and was continued by detachment commanders after weapons personnel arrived at their track assignments. Company commanders and battalion staff officers made regular visits to the various detachments and supervised the preparation of range cards and firing data. Then, just as it seemed that weapons were manned with at least minimum standards of efficiency, orders would come down the line to send another draft to Tientsin for return to the States. Invariably such drafts would take a good share of weapons operators and the cycle would start all over again.

All track detachment commanders within the 2d Battalion, 7th Marines' zone of responsibility were lieutenants, a large portion of whom had graduated from Quantico subsequent to the end of the war and had proceeded direct from the States to North China. As track detachment commanders, these officers were charged with the inherently heavy responsibilities of independent command. The distance to the nearest adjacent unit was in terms not of yards but of miles. No company or battalion commander or staff officer was able to direct the feeding of the detachment, nor issue the tactical orders when the situation became tense. The isolated nature of the duty required the relatively inexperienced officers to assume administrative and operational responsibilities that would never devolve upon small unit commanders stationed with their parent company or battalion. Frequently a track detachment commander found his detachment dangerously close to a fire fight between Nationalist and Communist troops. In such situations it was that officer's responsibility to decide when to take the necessary punitive action to defend the installation for which he was responsible. But decisions on whether to open fire were not made lightly. Track detachment commanders were well aware of the fact that if they opened fire against the publicity-wise Communists those shots would be the basis of an even larger Communist blast against the United States for armed intervention on the side of the Nationalists.

Few erroneous decisions were made. It was largely due to the magnificent discretion of those junior officers and senior NCOs who commanded the track detachments along the Peiping-Mukden that the very delicate, internationally explosive phase of U. S. foreign policy requiring the protection of the Peiping-Mukden railroad from Tientsin to the Manchurian mountains was accomplished successfully. Those who manned the track detachments realized that they were charged with the responsibility of executing the policy of the United States government, a traditional role of the U. S. Marines.

THE PROBLEM OF SUPPLY for a battalion stretched out over 30 miles of Chinese railroad was not a simple one. Within the zone of the



2d Battalion, 7th Marines, six separate galleys were maintained, one at each of the principal bridge guard detachments. Railroad station details usually received their meals in hot food containers from the nearest bridge guard galley. The very fundamental problem of maintaining six galleys on the tracks was not a simple one from the personnel standpoint—particularly when, during the peak of the demobilization program, there was not one rated cook in the battalion's six track galleys. Rations were distributed from the regimental supply point to the track detachments by special train. Dry stores were distributed every nine days and fresh foods every three days under supervision of battalion supply section personnel. This was probably one of the few times in military history when units below company size have been supplied directly by rail.

During the spring and summer months the matter of refrigeration was an ever present worry to detachment commanders. Mechanical refrigeration may have been successful in many instances in the Pacific, but gasoline powered units were not the answer to the problem on the dust-swept North China plain. Within ten days after issue of five gasoline powered refrigeration units to a battalion, all five of the units were inoperative due to mechanical failure. The "obsolescent" but reliable ice chest was used for the remainder of the warm weather.

Marine units along the Peiping-Mukden were on the far end of a supply line that extended across the entire Pacific. As was the case during the war, the supply of fresh eggs from regular sources was never equal to the demand. However, the more enterprising detachment commanders soon discovered that empty beer cans were in demand by the villagers and farmers who were willing to pay for them with eggs. Thus, as long as the supply of canned beer held up there was little shortage of eggs for breakfast.

The lineal dispersion of battalions over distances of thirty to forty miles along the tracks created a definite problem from the standpoint of inspections. A battalion commander's inspection of his track detachments was at least an all day project. In making such inspections, a special train was usually used. Such a train normally consisted of a caboose, engine, and tender. The average caboose on the Peiping-Mukden was of ancient vintage, with a wooden frame that swayed and creaked with every bump in the road bed. With some luck, it was possible to procure—but not through official channels—a fairly good caboose which was utilized as a regimental and battalion command post for track inspections. To assure ready identifica-

tion, the caboose had two large U. S. flags painted on each side, and flew a U. S. flag from the top. Just in case "dissident elements" did not "notice" such obvious identification, inspection parties included well-armed guard details. Inspections were planned so that travel could be accomplished during daylight hours. Anyone who has traveled the Peiping-Mukden at night can readily appreciate the wisdom of such precaution.

There had been practically no replenishment of track or rolling stock in over eight years. Wooden ties were so rotten that it was frequently possible to pull out rail-holding spikes with one's fingers. The mere fact that the engines kept functioning at all was a tribute to the super-human efforts of maintenance personnel. Practically all gauges in the engine cabs were broken. It was indeed a rare sight to see an engine with a working headlight. Consequently, a night trip on the Peiping-Mukden behind a wheezing engine that roared over deteriorating track without benefit of headlights was not deluxe travel. The absence of a headlight was all the more undesirable as the result of the known tendency of the Communists to carry off stretches of track under the cover of darkness. All of which made the role of a Peiping-Mukden engineer not an enviable one. But it must be observed that the Chinese train crews on the Peiping-Mukden earned the admiration of those marines who had occasion to know the almost insurmountable difficulties under which the road kept running.

Corpsmen treat wounded Chinese soldier on platform of An-Shan railroad station.

STATION MASTERS along the Peiping-Mukden were men of considerable stature in the affairs of their community. Lacking the modern control facilities for handling train traffic, all responsibility for the safety of traffic rested on the individual station masters, who, with nothing more than a few squeaking, hand-operated signals, and a wall telephone of ancient design and diminishing efficiency, kept the traffic moving safely and relatively smoothly.

Marines who were members of station guards soon discovered that the Peiping-Mukden station masters were unique personalities. They usually dignified their position by wearing a semi-military uniform, the cap of which was circled with a wide gold braid ribbon. Usually cooperative and genial, there was one request to which the station masters always gave a loud and meaningful "No." Never would they relax their rule that a train could not clear their station unless the preceding train had left at least ten minutes previously. No amount of military rank, Marine or Chinese, could prevail upon the station masters to violate the rule that was the cornerstone of their safety code.

One of the more unforgettable characters among the station masters was one Mr Liu of An-Shan. Marines at An-Shan had reason to develop a sense of respect for Mr Liu, who never knowingly missed an opportunity to be of service to them. An old resident of the community, he was a veritable clearing house for information of happenings throughout the countryside. Several times a day he would report to the Marine officer or NCO at An-Shan and after bowing and saluting would make his gratuitious report. After a few weeks of "tutoring" by marines he would preface his remark with the quite anomalous expression: "Here's the latest hot dope." This, as one marine aptly remarked, was proof that American influence had finally came to North China. But there was probably no greater tribute to the Chinese employees of the Peiping-Mukden than the remark made by the Marine driver of a track-truck that made schedule trips through the 7th Marines

When veteran 1st Division landed in Tientsin in October 1945 it was "ding hao" and cheers for the liberators. But the marines had a difficult job ahead of them.

zone. After about a month of operating the converted 1-ton truck, the driver remarked, "Since I've seen how these people can keep a railroad running with so little to do with, my hat's off to them!"

Communications for a battalion along the tracks was not an easily solved problem. Telephone was relied on principally. However, the Communist routine of cutting down telephone poles and making off with the wire made parallel radio communication imperative. A working system was established by placing a SRC-300 with each station and bridge guard, a total of eleven within the 30 mile zone of the 2d Battalion, 7th Marines. Thus the telephone, the primary means of communication in the zone, was paralleled by a secondary stand-by system, by which messages could be relayed to or from any detachment in the zone. Careful officer supervision and frequent checks kept the radio relay system functioning in spite of the lack of trained operators.

THE TACTICAL SITUATION between the Nationalist and Communist forces along the tracks was subject to rapid change. Consequently, Marine battalion and regimental commanders required a constant flow of information, both to keep themselves abreast of the situation and for forwarding to division. Individual track detachment commanders were the primary sources of information, and prior to taking their turn on the tracks, they were briefed of the situation and informed of the necessity for reporting even apparently inconsequential happenings. It was found that what often appeared to be a minor isolated incident usually assumed important significance when it was reported and interpreted in the connection with other developments within a battalion or regimental zone.

It did not take S-2s long to realize that the apparently helter-skelter guerrilla activities almost invariably were part of a broad and coordinated operation usually focusing on a particular sector of the area. Significant informa-

tion was usually reported to battalion headquarters immediately by phone or radio. Routine and confirming reports were submitted by all detachments. A courier riding the early morning coal train would pick up intelligence reports from all detachments and deliver the reports to the battalion headquarters at Peitaiho, where the reports would be interpreted, evaluated, and passed to regiment.

Additional information was procured from Chinese civilian and military agencies. Information provided by such sources ran the entire scale from very reliable to completely unreliable. It therefore developed that S-2s were faced with difficult problems of evaluation. From the mass of such reports flowing into battalion headquarters it was usually possible to obtain an accurate but quite general picture of developments in even the relatively distant areas. Despite its questionable reliability and hearsay nature, this type of information did provide the basis for accurate forecasts of increased Communist activity along the tracks.

TRACK DUTY provided an excellent opportunity to see the Chinese military forces operate in the field. It did not take long to recognize that, in the Chinese Army, as in any other, the relative efficiency of combat units is subject to great variation. The almost primitive equipment and appearance of the Peace Preservation Corps (former Manchurian Jap puppet troops) contrasted sharply with the clean uniforms, strict discipline, and modern well-maintained personal and organizational equipment of the Chinese divisions that has been trained and equipped by the United States. Marines felt considerable satisfaction in seeing the care with which their old friend, the Springfield rifle, was maintained by the Chinese infantryman. It was indicative of good discipline and high morale that the weapons of Chinese troops coming in from a three or four day combat patrol were well oiled and clean.

United States-trained Chinese troops charged with the defense of the Peiping-Mukden demonstrated that indications of their soldierly qualities were not superficial. Chinese battalion, regimental, and divisional commanders adhered to what we consider to be sound military procedure. They patrolled actively, and more than one engagement was brought on as the result of the aggressive Nationalist patrols. Not the least of their attributes was a marked ability to react quickly and decisively to unexpected developments. The ability for quick tactical adjustment was well demonstrated when, during the middle of last summer, a sizable Communist force threatened the rail center of An-Shan. The Communists began their aggressive action by seizure of outlying villages during early evening. The Nationalist garrison at An-Shan consisted of about 200 infantry with one 75mm pack howitzer and a few mortars. By ten o'clock that night, before Communists had time to complete final preparations for the attack, the Nationalist division commander, in his CP at Chang-Li, 20 miles away, had completed the reinforcement of An-Shan with 900 infantry, additional mortars, an armored train, and two 75mm pack howitzers. Some reinforcing units came from garrisons 50 miles from An-Shan. Confronted by such increased opposition, the Communists withdrew, probably hoping for a less alert commander the next time.

A VISIT to a Chinese National regimental command post during the battle at Ko Po Chen (three miles from An-Shan) during June of 1946 indicated that principles of good command procedure were being followed. The S-3, a major, was keeping the situation map and was in telephonic communication with the regimental commander who was at a battalion OP. The S-2 was also forward at an OP. The regimental CP had both telephone and radio communication with division. The S-3 explained that normally the regimental executive officer was in charge of the CP in the absence of the CO, but at that particular time the regimental exec was in an adjoining room sleeping for the first time in about two days.

This action at Ko Po Chen provided marines at nearby An-Shan with plenty of reason to realize that although the war was over, peace had not yet come to the Orient. It also gave the marines reason to admire the Chinese soldier as a brave and able fighting man. The battle of Ko Po Chen began when, after a prolonged period of patrol activity, a Communist force marching south from the Great Wall made a midnight attack on the garrison at Ko Po Chen. Although outnumbered several times, the Nationalists, suffering 60 per cent casualties, held their positions until relieved by a supporting dawn attack directed from its CP at An-Shan. During most of the following morning the dead

Converted one-ton trucks were used by marines for patrolling battalion sectors. Communists often made off with sections of track, making night travel hazardous.

and wounded were being carried into An-Shan for evacuation by rail to their division "hospital" at Chang-Li. Chinese field forces have little or no medical service, and many of the wounded had been unattended for over 12 hours when they reached An-Shan. It was a matter of humanity and not one of intervention when the battalion medical personnel administered first aid to the more seriously injured, many of whom would have died had it not been for the sulfa and plasma treatment received on the station platform at An-Shan.

That U. S. training had brought a new awareness of military discipline to the Chinese soldier was illustrated during the course of a visit by a Marine officer to a Chinese regimental garrison headquarters at Chang-Li. While the Marine officer was in the Chinese colonel's office, a lieutenant was talking loudly and rapidly, as only the Chinese can, to some Chinese NCOs lined up at rigid attention just outside the open door to the colonel's office. After the Marine officer left the building he asked his interpreter what the Chinese lieutenant had been saying so emphatically to the NCOs. The interpreter replied that the lieutenant, the regimental adjutant, had "been bawling out the NCOs for slacking off in their military courtesy."

MARINES on the Peiping-Mukden had carried United States authority to the far side of the world. Those who manned the detachments scattered from Tientsin to the Manchurian mountains soon gained a new appreciation of the influence and prestige of the U. S. flag. Detachments held morning and evening formations for colors. By manifesting a respect for their nation's flag the Marines sought to create a sense of respect for the U. S. flag in the Chinese who never

failed to watch the flag raising or lowering ceremonies.

The Chinese at the railroad stations where Marines had morning and evening ceremonies for colors were not to be outdone. Soon after the Marines began holding such formations the Chinese began to hold similar morning and evening ceremonies for their national colors. Not having military garrisons located immediately at the stations, the station masters took over direction of the new ceremonies. It was not long before the marines fell in for colors up at one end of the station platform and Chinese lined up at the other end of the platform. With a nice sense of courtesy the Chinese never attempted to hold their ceremonies before the marines had completed theirs. At most of the stations the semi-military Chinese railroad police personnel would hold colors. The station master at Lan Hsien, however, was unable to produce either a necessary number of soldiers or railroad police. Consequently, every morning he would officiate at the flag raising ceremony at which he lined up all the railroad personnel over which he could assert his authority. As soon as the marines had finished hoisting the colors, the Chinese flag would be pulled up to the accompaniment of the assembled station personnel—janitors, office force, and track hands—all singing the Chinese national anthem.

A PARTICULARLY cordial relationship developed between the Chinese station personnel and the Marine guard at Lan Hsien. In the rear of the station the marines had laid out a volley ball court, and it was not long before the Chinese station employees were addicted to the game. A contest between the Chinese and marines finally took place to determine the volley ball championship of the Lan Hsien area. The marines won, but only after a game which, because of Chinese enthusiasm and utter disdain for rules, combined all the roughness of polo, rugby, and lacrosse. A few marines pointed to their black eyes as vivid evidence of the enthusiasm with which the Chinese played volley ball.

The widely separated detachments on the Peiping-Mukden gave junior officers seldom equaled opportunities for independent command. As such, this type of duty emphatically proved the truth of the old adage that a unit is the reflection of its commander. Isolated from direct supervision or even their company commanders, detachments were well insulated by space from outside influence. In periods of as little as two days after change of a commanding officer the entire character of a detachment could be radically altered. Depending on the new commander, the detachment could improve measurably or deteriorate measurably.

The marines who manned the positions along the Peiping-Mukden often cast envious eyes on those doing duty in the cities of Peiping or Tientsin. But, along with their lonesome duty on the tracks they learned more about the real China than those who remained in the big cities. They learned how vital a railroad can be in a nation's battle for survival. They saw the ambulance trains rolling back from Manchuria, and heard and witnessed local battles. Those who were close to the battles such as that at Ko Po Chen came to recognize that Chinese troops properly led, were determined and capable soldiers. Those who saw the bodies of battle victims laid out for identification saw first hand evidence that contrary to the opinions of numerous self-styled authorities, the civil war of China is not a "phony war."

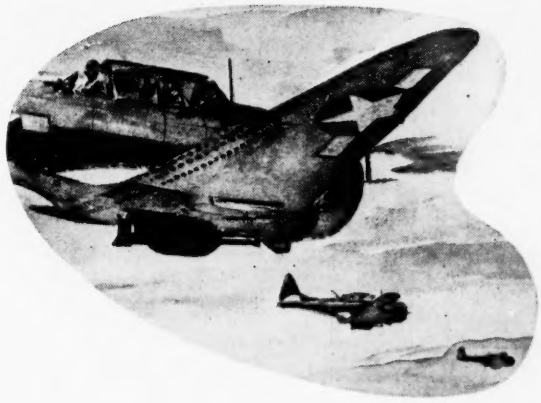
But in addition to the violence, marines who saw winter bleakness of the North China plain change into the lush verdancy of spring will also remember the fertile fields thick with hand cultivated crops, graceful willows swaying over winding streams, and peasant children tending their sheep along the grassy banks of the railroad.

IT WAS in the midst of such contrasting surroundings that the Marines carried out U. S. policy along the Peiping-Mukden. How well they accomplished their mission is evident from the fact that when they first moved northward in the fall of 1945, a train trip from Tientsin to Chin Wang Tao was an ordeal of three to five days. By late spring the Daily Express was rolling over the Marine-guarded bridges on schedule, making the same trip in slightly over four hours.

Duty on the Peiping-Mukden was the type of experience that usually comes only to marines. Those who stood their duty in the winter numbing cold and suffocating dust and in the merciless summer sun can take satisfaction in having participated in another of the Corps' jobs well done.

They will probably also take satisfaction in the fact that they can view the job in retrospect. US MC

Devil Birds



The Forgotten War In The Central Pacific

By Capt John DeChant

THE MARSHALL ISLANDS IN THE CENTRAL Pacific are a series of coral outcroppings within the equatorial latitudes that are cooled by the trade winds and sopped by rain. Some 1900 miles west-by-south from Honolulu, their two rough groupings, Ralik on the west and Radak on the east, cover a sea area one and one-half times the size of Texas. Yet their total land mass is only 74 square miles. They came into the possession of the Japanese by the mandate provisions of the Versailles Treaty and were lightly garrisoned from the 1920s until 1940. The two exceptions were Roi and Kwajalein completed as military bases in the 1930s. Both are parts of the Kwajalein Atoll.

Because of prolonged disagreement in the Japanese High Command over whether the Marshalls or the Marianas should be the first line of Empire defense, it was not until the eve of war that the atolls of Wotje, Maloelap, Majuro, Mille, and Jaluit were hurriedly developed as feeder bases for Roi, headquarters of the 24th Air Flotilla.

It was the intent of the Japanese strategists to use the Marshalls, with the captured additions of Wake and Midway to the north and the Gilberts to the south, as a screen to protect their southern drives through the Philippines, New Guinea, and the Solomons. As the eastward extension of the Caroline Islands, which harbored their mobile carrier striking force at Truk, Marshall-based forces were to harass or cut off, if possible, the sea and air communications between the United States and Australia.

Once their gains had been consolidated behind this barrier, the Japanese hoped to push south from the Marshalls through the Gilbert and Ellice Islands into the Samoan and Fiji groups. This move would seal off Australia and New Zealand, which could then be exploited at will. It was further expected that powerful Japanese sea and air task forces, staging through the Marshall bases, would be able to raid advanced Allied positions and seriously oppose American counter-operations in the Pacific.

The Allies recognized the danger inherent in this threat and countermoved accordingly. Five thousand officers and men of the 2d Marine Brigade sailed from San Diego on 6 January 1942 for Samoa. Their mission was to prevent the enemy from driving south and establishing a rigid blockade of east-west shipping between the United States and Australia and New Zealand. Thirty days after it had been formed, the Brigade completed its 4,500 mile journey in Samoa's Pago Pago harbor. A net work of defense installations for the main island of Tutuila mushroomed and, by early March, its first airfield was complete.

First air defense for this forward outpost were the planes of Marine Air Group 13. Grumman Wildcat fighters of its VMF 111 took off on their initial patrol missions of the area with the aid of a naval scouting squadron.[1] Outer-barrier defense of the Samoan group was enlarged in mid-April when fighters of VMF 211 were sta-

[1]MAG 13 had been commissioned as part of the First Air Wing at San Diego 1 March 1942. One week later its forward echelon sailed for Samoa.

Part V: Fourth Marine Air Wing neutralizes bypassed Jap bases in the Marshalls

tioned at Palmyra, Line Islands, which are 1400 miles northeast of Samoa and in a direct line with Pearl Harbor.[2]

With the transport routes covered by Samoa in the south, the Allies moved their convoys safely into New Zealand. The expected Japanese thrust at Samoa never materialized and activity in that sector of the Southeastern Pacific was static during the balance of 1942 and early 1943, with one exception. Marine units from Samoa occupied the atoll of Funafuti without resistance on 2 October 1942, moving their perimeter 280 miles northwest into the Ellice Islands. The Samoan-based offensive was so long in getting underway that it was not until March 1943 that VMF 441 was ordered to Funafuti as its garrison air force.

In the interim, another finger had been poked out at the barrier in the Marshalls. On March 17, Marine planes of VMSB 133 began operating off tiny Johnston Island, 700 miles southwest of Pearl Harbor and almost directly north from Samoa.

First harbinger of the advance in the Central Pacific was the arrival of BrigGen Harold D. Campbell in late August 1943 to command the Aircraft Defense Force, Samoan Area. One week later the forward echelon of the Fourth Marine Base Defense Aircraft Wing left Pearl Harbor for Tutuila. BrigGen Lewie G. Merritt arrived in early October as Wing Commander.[3]

IN THE FALL of 1943, as the tide turned in the South Pacific theater, the American offensive began inching its way up to the Central Pacific. VMF 441 was moved up to Nanomea, northernmost of the Ellice Islands, within flight distance of the Japanese bases in the Gilberts. On Armistice Day, Gen Merritt set up Fourth Wing Headquarters at Funafuti in final preparation for the Central Pacific thrust.[4]

Then, on 20 November 1943, while the South Pacific marines were consolidating their positions on Bougainville, marines of the 2d Division stormed the bloody northern beaches of Betio Island, Tarawa Atoll, site of the airfield and principal installations in the Gilberts. Seventy-six violent hours later, Betio's Japanese garrison of 5,000 was dead. American casualties in taking this square mile of level hell were nearly a thousand dead and 2,500 wounded. Makin, uppermost island of the Gilberts, was secured by the Army's 27th Division on 22 November against nominal resistance. Apamama, some sixty miles south of Tarawa, was occupied against light resistance by a platoon of marines landed from a submarine. Several further minor landings were made and the Gilbert Islands were safely in American possession.

The Fourth Wing island-hopped again in late December to begin housekeeping in the debris at Tarawa. Its scout bomber squadron 331 was sent forward to the air base at Makin, just two hours' flying time from either Jaluit or Mille in the Marshalls. An early combat action of the Marines scored on December 21 when planes from Makin sank a 6000-ton enemy freighter in a raid on Jaluit.

WITH THE LOSS of their Gilbert bases, Japanese commanders in the Marshalls made feverish preparations to withstand a momentarily expected invasion. They expected landings at one or more of the secondary bases prior to a later assault on the main centers at Roi and Kwajalein. American strategy operated to the contrary, on the thesis that the entire Marshalls area could be effectively neutralized by capturing the key bases first. Accordingly, the many-pronged invasion began 1 February 1944 with simultaneous assaults on Roi-Namur, Kwajalein, and Majuro by troops of the Marine 4th and the Army 7th Divisions.

At the end of the third day, all atolls were secured against opposition that varied from meager to strong. These units and other troops of the V Amphibious Corps under MajGen Holland M. Smith continued the landing series, occupying Engebi, the air base at Eniwetok on the 17th, and its main island two days later. These major beachheads were supplemented by a large number of landings by small troop units during the months of February, March, and April. Many of these secondary invasions were supported by carrier aircraft or shore-based planes of the Fourth Air Wing.[5]

[2]This was the rear echelon of the squadron which fought at Wake Island.

[3]The 4th MBDAW was activated in August 1942 at MGAS, Ewa, Oahu, under the command of Col Claude A. Larkin. Its slow development resulted from its squadrons being used as replacements in the Solomons.

[4]The Fourth Wing then comprised two Air Groups—MAG 13 with VMFs 111 and 441 and VMSBs 151 and 241; and MAG 31 with VMFs 224, 311, 321; scout bomber squadrons 331 and 341 and the transport unit, VMJ 353.

[5]VMF 311, flying from Roi field only a week after its capture, covered several of the earlier infantry operations. Dive bombers of VMCB 151, operating from Engebi, supported the landings at Wotho, Lae, and Ujae Atolls in mid-March. The longest recorded sustained flight for Corsairs under combat conditions was established by planes of VMF 113 while covering a landing at Ujelang Atoll. The F4Us were airborne for nine hours and 40 minutes.

In early March, Merritt's command moved up from Tarawa to Kwajalein atoll, fanning out its squadrons to the captured airbases. From them land-based Marine units began the prolonged aerial siege against Japanese installations and garrisons on the by-passed islands in the Marshalls' area.[6]

The landings at Eniwetok and Engebi wiped out the Japanese strategic position in the Marshalls. However, the enemy still held his four new bases at Mille, Wotje, Maloelap, and Jaluit. These had been swept clean of their aircraft and cut off from normal sources of communications and supply. Though isolated and without fear of invasion, the enemy commanders on those four atolls hoped that by keeping their air facilities operative, the day would come when their bases might serve as staging points for Japanese air and sea operations against American holdings in the Marshalls and Gilberts. During the remainder of 1944, despite the aerial siege, Japanese garrison forces on these atolls worked diligently to keep the airfields open and to strengthen their defenses.[7]

MajGen Louis E. Woods commanded Fourth Marine Air Wing in the Marshall Islands.

THE MARINE siege targets—Wotje, Maloelap, Mille, and Jaluit in the central and lower Marshalls were never garrisoned or built to peak strength. When the strangulation operation began against them, the four enemy atolls shaped up as follows, according to enemy data gathered by the U. S. Strategic Bombing Survey: WOTJE: 160 miles from Kwajalein with 3,000 troops on a land area of three-quarters of a square mile, a well-gunned and built-up air base commanded by RearAdm Nobukazo Yoshimi, IJN; MALOELAP: 75 miles southeast of Wotje and 210 miles from Kwajalein; 3,000 troops, main island of Taroa is one-half mile roughly square, maximum food stocks, well-defended; MILLE: 165 miles south of Maloelap, 195 miles from Makin; reef forms 90 islands with Mille at southwestern tip, the largest, four miles long, half mile wide; 3,000 personnel on this southern anchor of the Marshalls' defensive zone; 100 assorted guns in concrete, coral or coconut log revetments; JALUIT: 125 miles west of Mille, 210 miles from Kwajalein, five islands in the chain; 33 miles long and 18 wide, used as bases—Tiniet, Emidj, Enybor, and Jaluit; 2,200 personnel, Emidj had main system of defenses and had been used as a seaplane base; well-integrated and dispersed defense, food stocks and communications. Climate on all four target atolls is continuously hot and rainy. Barely above sea level, the atolls had considerable vegetation and several thousand native civilians who were anti-Japanese.

To thwart these hopes and to eliminate any future threat the atolls might hold for the northern convoy route, American planes were committed to their continued neutralization. The aerial siege was further expected to humble the enemy garrisons to the point of surrender and eliminate the necessity of costly invasions.

There were a few flurries of air action in the first phases of the campaign against the by-passed atolls which gave rise to the hope among the Marine garrison squadrons that the Japanese might decide to battle it out as they had so often in the South Pacific.

Mitchell medium bombers hit Ponape in the outer fringes of the Carolines on March 26. Their escort planes, Corsairs of Maj Loren D. Everton's Whistling Devil Squadron, intercepted 12 Zeke fighters rising from the Ponape field. Everton

[6]Two new Air Groups had joined the Wing—MAG 22 at Eniwetok and the transport group, MAG 15, with two squadrons based at Apamama. MAG 13's planes operated from Majuro while MAG 31's three fighter units and one night-fighter squadron, VMF (N) 532, were stationed at Kwajalein. VMF 111 was based at Makin in the Gilberts.

[7]In their strategic role as an outlying screen, the enemy bases in the Marshalls were never adequate because they lacked offensive air power. Even their defensive air strength was nominal because their naval air power was siphoned off into the Solomons' air war.

raised his South Pacific score to 14 by downing three, while his wingmen splashed five, damaged three probables, and burned another on the airstrip.

Ten Betty bombers raided Eniwetok at night, killed three, wounded 21, and escaped untouched. When they raided again on April 14, pilots of VMF (N) 542 found them in the dark, shot down two, and turned back the attack.

These flurries ended aerial combat in the Marshalls except for a stray snooper plane at rare intervals.

Then the disappointed marines of the Fourth Air Wing turned to the exasperating chore of grinding down enemy resistance on the by-passed atolls. They were aided by Army planes until June and by auxiliary strikes flown by Navy land-based planes until the end of 1944. There were sporadic carrier raids and task-force shellings, but the major responsibility for maintaining the neutralization pressure rested with the Marines.

The perpetual motion of the milk run raids in the South Pacific jungles was trying enough on the restless combat energies of any air unit. But in that theater there were at least trees to be seen, and mountains, and islands big enough to get lost on for a month. By comparison, the marines on the atolls felt they were prisoners on a pinhead.

For days and weeks and endless months, they flew back and forth, bombing and strafing the low-slung atolls. Often they hit the same target twice in a day. On one flight, the weather might be CAVU (clear and visability unlimited). On the next day they might be fighting their way in and out of sudden hazardous tropical storms. They bombed and strafed and strafed and bombed a narrowing assortment of targets—runways, buildings, gun positions, power plants, radar stations, blockhouses, dugouts, and gardens. At times, they varied the monotony of their loads by scattering surrender leaflets and canned salmon to enemy survivors and the natives. Slightly miffed, they stopped the psychological salmon warfare when one of the emaciated prisoners reported he would not eat American salmon because it was of such low grade.

THROUGHOUT the months from March to September, while the war and the glory moved on into the Western Pacific, a dozen or more Marine squadrons—Corsairs, Dauntlesses, and Hellcats—mauled the atoll targets. They micrometered their precision bombings to a point where a hit was not registered unless the bomb struck inside a thirty-foot circle. On more than 11,000 sorties in the period, they rocked the enemy islands with 3,300,000 pounds of bombs and serrated them with millions of rounds of machine-gun ammunition.

Antiaircraft fire during the first months was blistering in its accuracy against the low-altitude attacks of the Marines. Thirty-six planes were shot down in six months. Of their crews, 17 pilots and three enlisted men were lost while 16 officers and five rear gunners were rescued in spectacular operations by the flying boats and destroyers circling the targets for just that purpose.

Their grinding attrition took its toll. Where flak fire had been "intense and accurate," the reports now read "light and inaccurate." The primary targets had been sought out and obliterated, while fire bombs scorched the remains. Tiny fishing craft and scrawny parties working in the dawn and dusk were ripped by machine-gun fire from the search planes which scoured the atolls between raids for any signs of life or movement. By night, the tiring Japanese were kept awake in their dugouts by patrol bombers making their watchman rounds and raids.

FAR TO THE WEST, the invasion timetable now listed landings at Saipan, Tinian, Guam, and Peleliu. But the "rock-happy" squadrons of the Fourth Wing stuck to their milk runs over the atoll circuit. The turnover in personnel was slow and the strain of their drudgery in the forgotten war increased apace, as the airmen learned the truth of the wry island adage that dive bombers do not make headlines. Their contributions went virtually unnoticed, even that of Maj Elmer "The Iron Man" Glidden. This lantern-jawed commander of the Ace of Spades (VMSB 231), one of the oldest squadrons in Marine Aviation, reeled off a consecutive string of 77 combat dives against the atolls in his SBD. With him as rear gunner on all these strikes was MTSgt James A. Boyle. Glidden's total in the Marshall's, added to the 27 he made in the early days at Midway and Guadalcanal, set his record at 104 twisting, weaving runs down at the barking, red muzzles of the flak guns. It was the only record of its kind in naval aviation, but it passed without kudos because the front lines were thousands of miles away.

Cigar-mauling BrigGen Louis E. Woods, called "Bullets and Beans" by his men, took over as

boss of the forgotten war in late August.[8] Woods stepped up the crescendo of the bomb ballet as the summer passed into fall. Tonnage totals reached new peaks during the intensive pounding through December. There was a change of pace in these months as the venerable Dauntless SBDs were replaced in the squadrons by Corsair fighters.[9] The Wing concentrated its efforts on exploiting its new weapon, the VMBF, or fighter-bomber squadrons.

The fighter-bomber technique was the notable innovation produced by the cat and mouse war in the Marshalls. Marines used the enemy targets for experimental purposes in developing new tactics and weapons and improving old ones and, incidentally, turning the surviving Japanese crews into some of the most accurate AA gunners in the Pacific. In the spring, the Corsairs had accompanied the bombers as fighter escorts, to strafe targets ahead of bomb runs. Soon, with fighter protection obviously unneeded, and strafing runs hardly worth the trip for the Corsairs, the fighter squadrons tinkered with the idea of using the fast F4U as a bomber. This was in direct opposition to the standard dive-bombing technique which required slowing down even the none-too-fast SBDs in their final dive to get accuracy for pin-point bombing.

MAJ WILLIAM E. CLASEN'S Devildog (VMF 111) squadron made the first experimental run when eight of its Corsairs struck heavy AA positions on Mille with 1000-pound bombs from their belly racks. Results were considered good as four hits were made in the target area without the use of bomb sights. Subsequent tests were devoted to determining the type of dive angle that could best be used and the maximum effective bomb load for the Corsairs which had never been designed for the purpose.

Clasen reported: "This type of bombing is an art, not a science," he said. "It's like playing a violin. In the last analysis, you can't tell a man how to do it. He's got to experiment until he works out his own individual technique."

His pilots reported their own tactics: "Keep the whole target in view just above your engine cowling. When it disappears under the cowling, release the bomb. Release at the point where you've either got to drop it and get the hell out of there, or fly right through the target."

Squadron tactics with the fighter-bomber varied. Clasen's pilots often worked the glide approach rather than diving. The bomb-carrying F4U was covered by wingmen on both sides who kept the AA positions inactive while the bomber came down in a high speed approach and released at one hundred feet. Wingmen continued to strafe until the bomber retired out of range.

Most Corsair squadrons eventually concentrated on using the F4U as a dive bomber. Their efforts on live targets proved that the Corsair could be safely and accurately employed as a dive bomber up to and including 70 degree dives.

The F4U readily handled 2,000 pounds of bombs on its wings or under the fuselage, either as one bomb or as a mixed load of 500 and 1,000-pounders. Full use was made of their six wing guns during the last stages of the dive because the Japanese ground gunners would not stay at their stations in the face of such fire.

In improving the striking power of its own fighter squadrons, the Fourth Marine Air Wing was so successful with its fighter-bomber technique that it was adopted *in toto* by all of naval aviation and contributed materially to the increased potency of carrier warfare in the later stages of the Pacific war as did the Wing's experiments with Napalm bombing.

The fire bomb, a fluid mixture of gasoline and a jelly substance called Napalm, was used for the first time late in July in the Tinian campaign, but its initial use was complicated by difficulties with mixing, fuzing, and release mechanisms. Marine Corsairs, late in 1944, explored the difficulties and potentialities of the fire bomb on frequent raids and their hazardous trials demonstrated its effectiveness in the Marshalls against personnel, brush-covered areas, and light installations.

AT YEAR'S END, the Fourth Wing was still hammering at the slowly dying bases from Kwajalein, Eniwetok, and Majuro with more than a dozen squadrons, aided now by a Mitchell medium bomber unit (VMB 613), which pushed its PBJ landplanes on long, dangerous over-water shipping searches. Woods, now a major general, continued to command the Fourth Wing long after its policy of daily air strikes against the Marshall bases was cancelled in late January because all available targets had been destroyed.

Postwar interrogations of the enemy survivors

[8]Woods relieved BrigGen Thomas J. Cushman, who, in turn, had replaced Merritt in mid-May.

[9]Months later, the VMSB units switched again, this time to the SB2C, Curtiss Helldiver bombers.

on Wotje, Maloelap, Mille, and Jaluit provided singular testimony to the efficacy of the near 7,000,000 pounds of bombs, rockets, and Napalm which the Marine squadrons had laid on their atolls.[10]

AFTER THE CARRIER PLANES had wiped out the atolls' air defense, and the Army high-level bombers had destroyed a large portion of the massed areas of light construction, the Marine aerial strangulation proved viciously effective. More than 6,500 Japanese of the original garrison force of 13,000 died either in the bombing raids or as a direct result through the loss of food and medical supplies. The aerial blockade resulted in the deaths by starvation of 3,900 enemy troops at Mille, Wotje, and Maloelap. Japanese morale, originally high, dropped off sharply during the fall and winter months of 1944 and stayed low as the food and medical situation got worse.

Some enemy enlisted personnel surrendered before the end and greater numbers would have, had it not been for fear of being shot by their own troops. The senior medical officer on Wotje admitted that he had collected American propaganda leaflets which carried pictures of tempting meals and stared at them while eating the atoll delicacy of boiled rats for dinner. Both at Wotje and Jaluit, no attempt was made to treat enlisted men suffering from major wounds unless they held key jobs. Otherwise it was frankly stated they were left to die.

Japanese prisoners admitted that in the final months of the siege, cannibalism became an active pursuit on some of the atolls and that guards had to be posted over freshly buried corpses to prevent grave robbing for the sake of food.

It had been the mission of the Marine squadrons to smash the by-passed atoll installations and garrisons beyond all hope of recovery. This postwar survey (by U. S. Strategic Bombing Survey groups) was grisly proof they had succeeded. Enemy garrisons on Wotje, Mille, Maloelap, and Jaluit were virtually impotent. The offensive power of their bases had been annihilated and their defensive strength was nil because the daily life of the "feeble spiders" who remained had become only a struggle for existence against unsurmountable odds.

[10]The combined tonnage for all services in the Marshall Islands' siege was 12,900,000 pounds. Pin-point techniques used by Marine planes were credited with destroying the major portion of the defensive systems on the four atolls and contributing extensively to enemy problems by continued destruction of their living quarters and food and medical supplies. The radio facilities on all bases except Jaluit were kept inoperative and the air bases were all but wiped out by the persistent raids. Prisoners gave a lion's share of the credit for the over-all atoll damage to the 'little planes" or the "small ones." Next to the SBD, the Corsair fighter-bomber was rated by the Japs as the most effective aerial weapon.

Fourth Wing In The Marianas

FINAL SEGMENT OF ADM NIMITZ'S 1944 plan for the Central Pacific campaign was Operation Forager, involving the capture of Saipan, Tinian, and Guam islands in the southern Marianas.

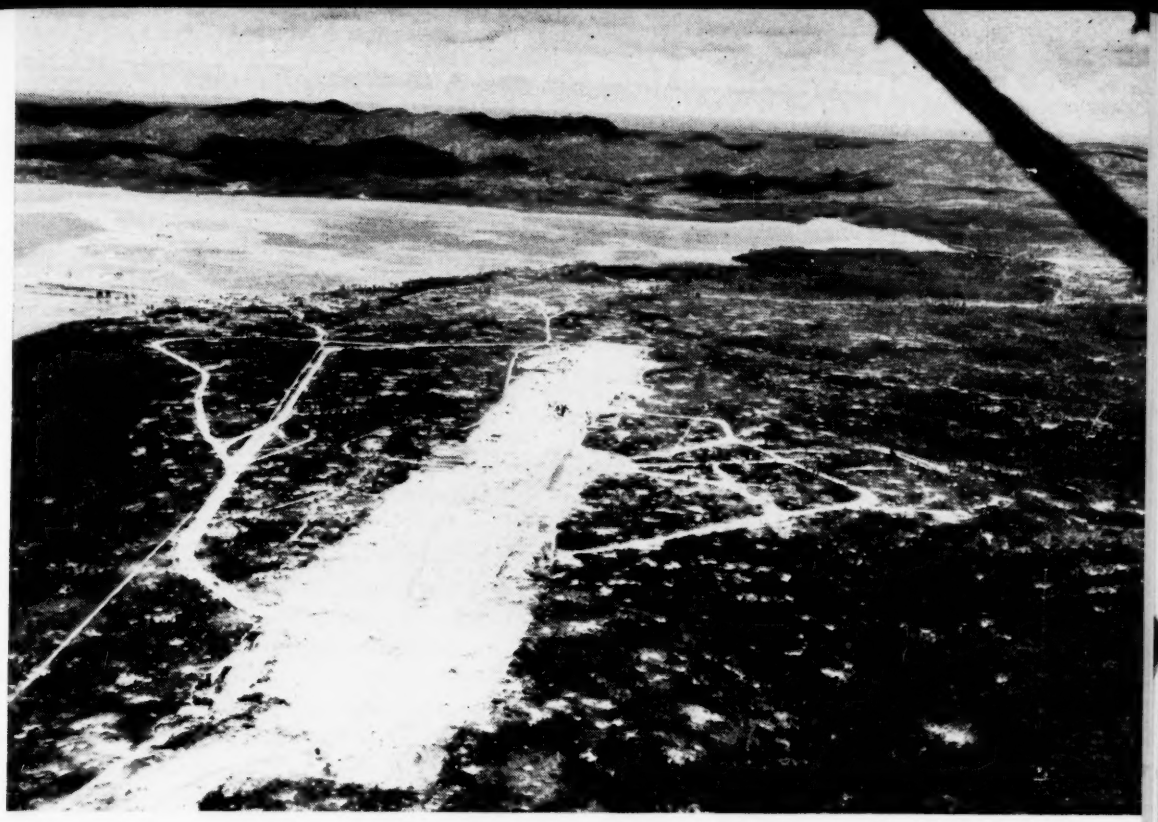
As was true of so many Pacific advances, the seizure of these bases was to advance American airpower along the road to Tokyo, since they would provide fields from which all of the enemy home islands could be brought under heavy air bombardment. Further, their capture would seal off enemy bases in the Carolines to the south and possibly bring the elusive Japanese Navy to battle. The bases at Saipan and Tinian were to screen the giant naval and air centers to be built at Guam, the former Navy and Marine base which the enemy had captured in the first days of the war.

Troops of the veteran 2d and 4th Marine Divisions, supported by the 27th Army Division, hit the western beaches of Saipan, capital of the heavily fortified Marianas on June 15. There was no enemy air opposition during the early assault phase because enemy air bases within range had been neutralized by carrier raids and land-based heavy bombers. However, Adm Shigetaro Shimada, Japanese fleet commander, launched a mighty two-pronged air assault on the invasion area and its supporting fleet on June 19, to crush the American forces in a huge vise as carrier planes struck from one direction and land-based bombers from another. The abortive effort turned into the spectacular "Marianas Turkey Shoot" for the carrier planes and into the Battle of the Philippine Sea, in which the Japanese task force was hard hit.

Ashore, the ground marines fought a bitter, 25-day battle over rugged terrain before securing Saipan, 1500 miles from Tokyo.

Marine air arm operations in the Saipan campaign were small, and centered on the activities of the VMO (Observation) squadrons flying artillery-spotting missions and the air-evacuation flights of the transport units attached to the Fourth Wing.

Tiny "Grasshopper" Stinson Sentinel planes of VMO 2 landed from carriers on a narrow



Jap airstrip on Orote Peninsula, Guam, was one of the prize Marine objectives. Captured Guam airfields later became the busiest in the Central Pacific theater.

roadway outside the town of Charon-Kanoa and began operations at dawn of the third day of the assault. During its first days ashore, the eight-plane squadron moved its base frequently because it was continually under enemy artillery fire.

Commanded by Capt John A. Ambler, the OY-1 pilots moved up to Aslito, main enemy field, right after its capture and eventually were the first planes to fly from three other captured fields. As the eyes of the artillery, the Grasshoppers flew from dawn to dusk on low-altitude patrols behind enemy lines, carrying with them air observers from one of the infantry units. Their usual scouting altitude was two hundred feet, though more often they flew only a few feet off the ground as they searched ravines, caves, canefields, and camouflaged positions. Most of their missions were flown within easy range of enemy small arms so that the cloth fuselages of their planes and wings were well-punctured by bullet and shrapnel holes. Six of Ambler's eight planes were cut up by enemy fire, but the pilots escaped unharmed.

VMO 4 did not fare so well. Five of its planes were wrecked and two pilots killed during the Saipan-Tinian campaigns. Its commanding officer and one pilot were seriously wounded by enemy bombs which killed three men and destroyed two planes. Six remaining pilots in the unit flew 700 hours to complete 400 missions during the operations, one of which was spotting a submarine and directing the destroyer gunfire which sank it.

With ten days of rest after the costly Saipan assault, the two Marine divisions crossed a two-and-one-half mile strait to land at Tinian. There, in a rapid eight-day operation against strong resistance, the weary marines pushed surviving Japanese defenders into a pocket in which they were destroyed with the aid of air and naval bombardments. At Tinian, the two VMO squadrons continued their missions, concentrating in the last phases of the Tinian push on scout and observation missions for the fast-moving infantry units.

Near the south end of Tinian, Capt Ambler, whose squadron had spent 760 hours in combat flight, discovered two Japanese tanks racing toward a ridge position held by 400 enemy troops. Target information was radioed to the artillery batteries which knocked out the tanks, the 400 Japanese, and the strong point.

The third phase of Forager unfolded when

troops of the III Amphibious Corps under MajGen Roy S. Geiger made two simultaneous landings on Guam's western beaches the morning of July 21. Marines of the 3d Division and the 1st Provisional Brigade, with the 77th Army Division in support, drove through stubborn opposition in the cities, canefields, jungles, and mountains of Guam to split up and destroy enemy resistance after 21 days of grim fighting.

Carrier-air support was extensive before and after the landing phase at Guam. The first night ashore more than one hundred planes were used in helping repel counterattacks on both flanks of the beachhead. Frequent Japanese night *banzai* charges and night attacks forced the use of aerial illumination at the front lines and Marine Hellcat fighters of VMF (N) 532 flew combat air patrol from dusk to dawn over the battle areas. This unit, based at Saipan, began its initial operations over Guam two days prior to the landing and continued its night patrol during the campaign.

THE MAJOR MARINE air actions at Guam got underway when squadrons of Marine Air Group 21 flew off the carrier *Suwanee* to land at Orote field on August 4. Through the remaining days of infantry operation, Corsair squadrons 216, 217, and 225 and night-fighter unit VMF (N) 534 supported the line troops.

As they had at Saipan, the Grasshopper planes flew continuous missions for both the infantry and artillery. VMO 1 landed its green-hued planes on Orote field the day of its capture.[11]

One day after marines had cleared a portion of Agana field, the OY-1s moved up, though the Japanese still held the far end of the strip 3,000 yards away. Unable to use the field, the squadron flew off a nearby road which had been ground out by tanks and amphtracks. Deviled by raids, mud, and mortar fire, the unarmed and unarmored "Madame Butterflies", which had a top speed of 130 miles an hour, flew spotter missions for 27 artillery batteries. During the first ten days off Agana, every pilot in the squadron, commanded by Maj Gordon W. Heritage, averaged more than 30 missions. Two of its pilots were awarded the prized infantry medal—the Silver Star.

Lt George B. Lovelace flew 12 miles behind the lines to locate his target. Discovering a large enemy concentration, Lovelace dropped down to 75 feet through intense machine gun fire, calling direction to the artillery which wiped out sixty trucks, two tanks, numerous positions, and killed 400 Japanese.

Lt Gerald R. Skogmo earned his award for "conspicuous gallantry and intrepidity in action" on a mission in which his plane hovered fifty feet over an enemy position. Bullets smashed into his cockpit, missing Skogmo, but badly damaging his plane. Nursing it back to the field, the marine climbed out of the battered Grasshopper and into another and returned to finish his mission.

Six of the squadron's planes were hit by Jap fire but none were lost and it had no pilot casualties. Staff observers of the III Amphibious Corps estimated that 3,000 enemy troops, 300 trucks, 10 tanks, and numerous storage dumps, warehouses, and bivouac areas were destroyed by artillery fire directed by observation from the Stinson Sentinels.

BrigGen Pedro Del Valle, senior Marine artillery officer on Guam, wrote of the air-support efforts of the squadron: "VMO 1 did an excellent job. These planes flew innumerable missions in all sorts of weather. Flying so close that, at times, they almost skimmed the trees, they smoked out enemy guns, trucks, bivouacs, and dumps with great skill and persistence."

SENIOR SHORE-BASED AIR COMMAND in the Marianas was the Marine Air Defense Detachment, Forward Area, which operated administratively under the Fourth Wing and was originally commanded by Col William L. McKittrick. It went ashore with the assault waves at Saipan to direct the Army squadrons handling local air defense. Its Marine units were grouped at Guam under Col Peter P. Schrider, who served as Air Defense commander of the island and commander of MAG 21. By November 1944, when McKittrick was replaced by BrigGen Thomas J. Cushman, 2200 officers and men of Marine Aviation were on duty in the Marianas with 11 operating squadrons. Their main activity was a neutralization bombing campaign against islands in the upper Marianas. Daily for four months, the fighter squadrons hit Rota, 55 miles away, or ranged 280 miles north to bomb the enemy base at Pagan. This by-passed-island operation was in effect until the end of the war.

To be continued

[11]During the Cape Gloucester campaign on New Britain, beginning 24 December, 1943, a Marine observation squadron, using borrowed Army Piper Cubs, was employed by the 1st Marine Division. Its pilots were a pick-up group of officers and men who had prewar flying experience or were Marine aviators on detached duty with the division.

The Marines in the Pacific War

Chapter 12

BOUGAINVILLE; BEACHHEAD IN JUNGLE

By Fletcher Pratt

On 11 July 1943 Adm Halsey called a conference and set up an organizational plan. The campaign for Munda, if not proceeding brilliantly, was at least making sufficient progress to guarantee its ultimate success. The next long step would be to capture a naval base and airfield at Bougainville, both to eliminate that island as a center of Jap aerial bases and to furnish fields from which we could put light bombers under fighter cover over Rabaul, which would effectively neutralize that enemy center. For this job RearAdm Theodore S. Wilkinson was named commander of a new unit, the 3d Amphibious Force, Task Force 31, with general leadership of the forces afloat and on the beach. Under him was Vandegrift, now a lieutenant general, as head of the I Marine Amphibious Corps.

This corps was a South Pacific command, originally composed wholly of marines—the 2d and 3d divisions, with the Raiders, Parachutists, and several defense battalions in its organizational set up. It paralleled the Army XIV Corps, under MajGen Harmon, the aviator, which contained the 37th and Americal divisions, ready for early action, and the 25th which had fought hard on New Georgia, and was entitled to some rest and recruitment. The Army command had had charge of the last operation, calling for whatever help necessary from the Marines. The next operation was to be Marine, with help coming from the Army. (It is not to be thought that the inter-service questions were confined to Japan, but the difference is that we solved them in good humor and on a basis of reasonable cooperation.)

Before the Bougainville attack could be planned, however, the 2d Marine Division was taken away from its corps for Tarawa. The result was that after a good many paperwork changes which caused staff men many sleepless nights and severe cases of mental indigestion, the 37th Army Division became a part of the new corps for this operation.

The beachhead force of the corps was still the brand-new Marine division, the 3d, commanded by MajGen Allan H. Turnage, just organized and in training among the mountains of New Zealand. The three Marine infantry regiments were the 3d, 9th, and 21st, the last two of them new but with sizable cadres of experienced men. It had an artillery regiment, the 12th, a regiment of engineers, the 19th, an attached Seabee command; and for the purposes of the operation there was added to it another new organization, the 2d Provisional Raider Regiment (LtCol Alan Shapley) which had been formed by boiling together Carlson's old 2d Raider Battalion and a new 3d Raider Battalion —the Raiders being not now so much needed in their specialty, since the days when we had to think in terms of raids were pretty much at an end.

Part X: Marines establish Torokina perimeter despite active resistance and jungle

Bougainville is the largest of the Solomons, inland a ferocious jumble of rocky jungle in which nothing but an insect can live. Flatlands along the coast allow the construction of numerous airfields, an opportunity of which the Japanese had not failed to avail themselves. They had a good field at Kieta on the northeast coast; a pair on opposite sides of Buka Passage in the north, where Bougainville faces the smaller Buka Island across a strait so narrow as hardly to be a passage at all. At the southern end of the big island a complex of shoals and smaller spots of land makes access from the sea as difficult as at Munda; here the enemy had a whole series of airfields with fortifications and coast artillery.

THE FIRST PLAN of the new amphibious force called for a direct attack on this complex to secure a naval base and airfield, but as soon as recon reports and intelligence began to come in, it was clear that Gen Vandegrift's corps would not be big enough for the job. These recon reports were unusually complete; our submarines worked all around Bougainville, photographing the beaches by periscope and landing parties of two or three, who slipped into the interior to make contact with coast-watchers. The latter had the natives (who on this island are mostly Methodists and Seventh Day Adventists) well in hand and there was a good count on the enemy forces. The Shortlands in the south held some 6,000 Japs; around the airfields across the bay there were 3,000 more, with another 17,000 in the immediate area. There were 5,000 at Kieta, say 4,000 in the Buka area—about 35,000 altogether.

On 5 August, therefore, the plan was redrawn. Now it was to take the Shortlands only and put the airfields inshore out of business by long-range gunfire. The accumulation of evidence showed this as not much better than the original idea. The beaches at the Shortlands are not wide enough to set any sizable force ashore in the important first rush, and suppose we did put the enemy's fields out of action by cannonade, how would that help us get an airstrip of our own? There was, moreover, the big strategic picture. Down through that summer it was becoming increasingly clear that the Japs suffered from no shortage of manpower but a very serious one in shipping; and that their air force, if not actually wearing out, was sustaining losses that could not be borne forever.

Why not (argued the staff) attack them at points where these weaknesses could be made to count? That is, by seizing an area of our own on Bougainville and setting up an airfield there behind a perimeter defense, along the lines toward which the Guadalcanal operation had unconsciously developed. The Bougainville terrain was far worse than that on the island earlier taken, the only practical trails for large bodies of troops being close along the coasts. The enemy could not move men by these routes nearly as fast as we could reinforce by sea, and whatever troops he did move would be subject to air attack and naval shelling all the way, with the result that he would have the same difficulties about transporting heavy weapons as on Guadalcanal; more serious ones still in keeping his troops well supplied and healthy.

At about the time this idea was under discussion, some of the SOPAC staff returned from a visit to MacArthur's headquarters, with the report that he too took a dim view of an attempt on the Shortlands. Lae, Salamaus, and Finschaffen in New Guinea had lately fallen into the hand and Rabaul was already under air attack from this direction. He was projecting an advance by leaps westward along the coast, and would like Adm Halsey to investigate the possibility of bypassing the Japanese concentrations on Bougainville by seizing some spot on the western coast of that island. As Bougainville fell into the area of MacArthur's overall command, it could be considered that his desires were entitled to weight. The new idea was a more land-going version of the same strategic plan that lay behind the campaign for the Gilberts and Marshalls—seize a base in the center of enemy holdings and by means of mobile forces pin them all down in passive defense.

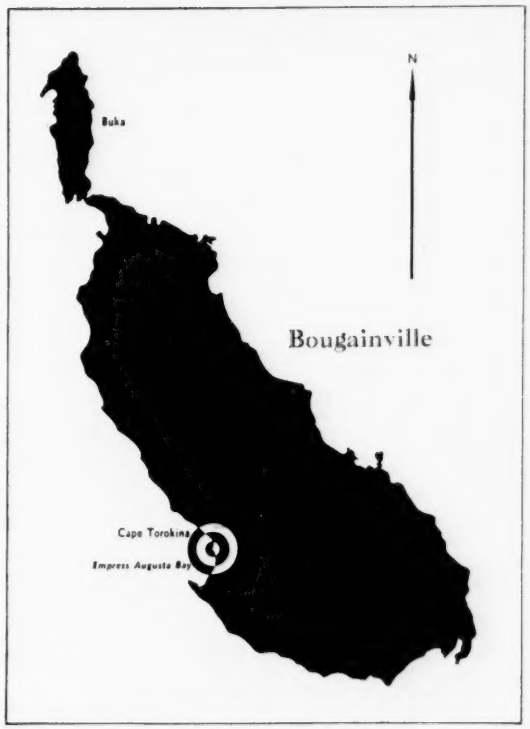
THE PLACE actually selected was on the north shore of wide Empress Augusta Bay, where the fishhook-shaped Cape Torokina juts out toward two islands, Puruata and a tiny dot of land named Torokina. It is a nasty neighborhood, lacking a good anchorage and with no shelter for ships from the winds that often blow onshore with great force; the beach only a few yards wide before jungle shoots up like a wall. But the land behind was flat for some distance to the hills and an area some eight miles long is nicely boxed in by two deep winding sluggish streams, the Laruma and Torokina. Puruata Island was held by the enemy, but not in any great strength,

and the forces ashore behind it were estimated at 1,000 men—mostly at Mosigetta, a station where the main coastal trail cuts inland briefly. This lack of probable resistance was another reason for selecting the Empress Augusta Bay region. Most of the big ships that could give crushing fire support against a defended shore were needed to cover the oceanic move to Tarawa-Makin and the Navy could spare for the Bougainville show only three squadrons of destroyers (23) and a division of light cruisers (4).

The detailed plan called for a landing on a front running from Torokina Cape northwest for something better than two miles, along 12 designated beaches. The three battalions of the 9th Regiment would go in abreast on the left, beyond a small river called the Koromokina. East of the stream, two battalions of the 3d Regiment would land with a battalion of the Raiders just north of the Cape. The remaining battalion of the 3d would land on the Cape itself; the other battalion of Raiders would take Puruata.

This would give a broad, quite shallow beachhead, thus getting all the men the 12 transports could carry ashore in a few hours. Gen Turnage was most desirous to push patrols inland early to find airfield sites, and wanted to be able to shift his forces from one beach to another in case lines of resistance developed which were not visible to the camera. Each transport had one battalion and its equipment; they would have to make a second trip or more for the 21st Regiment and the 37th Division. As they would have to go back immediately for these troops, cargo loadings for the original expedition were cut to 500 tons per ship, the very minimum needs in food and ammunition for ten days. It was estimated that this amount could be unloaded in the five or six hours that would elapse before dark of D day put an end to the business. Jap planes would come at night.

THE 3D MARINE DIVISION had been subjected to a rigorous conditioning process under the rain of New Zealand. Before it embarked there were careful conferences, first of regimental and battalion commanders, then of company officers, finally of the noncoms and individual marines. Everything was laid out on maps to the last detail and every man was taken over and over the process till he knew, not only what his unit and he himself were supposed to do in the landing, but toward what objective every other man



in the beachhead force would be working. The rehearsals at Efate went off well. Probably no command new to combat went into action in the Pacific with its lessons more exquisitely learned. The date was set for 1 November.

An annex which had always been part of the overall scheme called for the seizure of the Treasury Islands off the south coast of Bougainville as a motor torpedo boat station and staging airfield, a day before the Bougainville landing. This project was entrusted to a New Zealand Brigade, and need not concern us further except to remark that it was carried out smoothly and with light casualties on the designated day.

II

THE BOUGAINVILLE COMMANDS WERE UNDER the general direction of our old friend LtGen Hyakutate, then at Rabaul.* He was a some-

*We know less about the Japanese in this campaign than in almost any other. A large number of them were the wreckage of the big command on Kolombangara, which the Japanese had evacuated, or attempted to evacuate, after the American seizure of Vella Lavella. They had lost heavily when our destroyers attacked their transport in the Slot during the process, and on arrival at Bougainville many of them were brigaded into new, temporary organizations. Most of these secondary groupings were destroyed in the disaster of March 1944 and their records and diaries went with them into the jungle mud.

what subdued man since the Guadalcanal campaign; forced to think in terms of the defensive, a form of war he did not like and for which he considered the Japanese Army ill-prepared. Nevertheless, there is nothing to indicate that he had any particular apprehension about Bougainville. The troops in the Shortlands area were grouped around the Kure 7th Special Naval Landing Force, an organization which had come out full strength and had been very little depleted by casualties. There was nearly a full division of Army troops with them, made up of fragmentary organizations that had originally been in the lower islands, and a new, full division, the 6th Infantry, assigned to Hyakutate's army when the Guadalcanal campaign went sour and sent forward to Bougainville in December of 1942, when it appeared that the Americans might strike farther north along the Solomon chain.

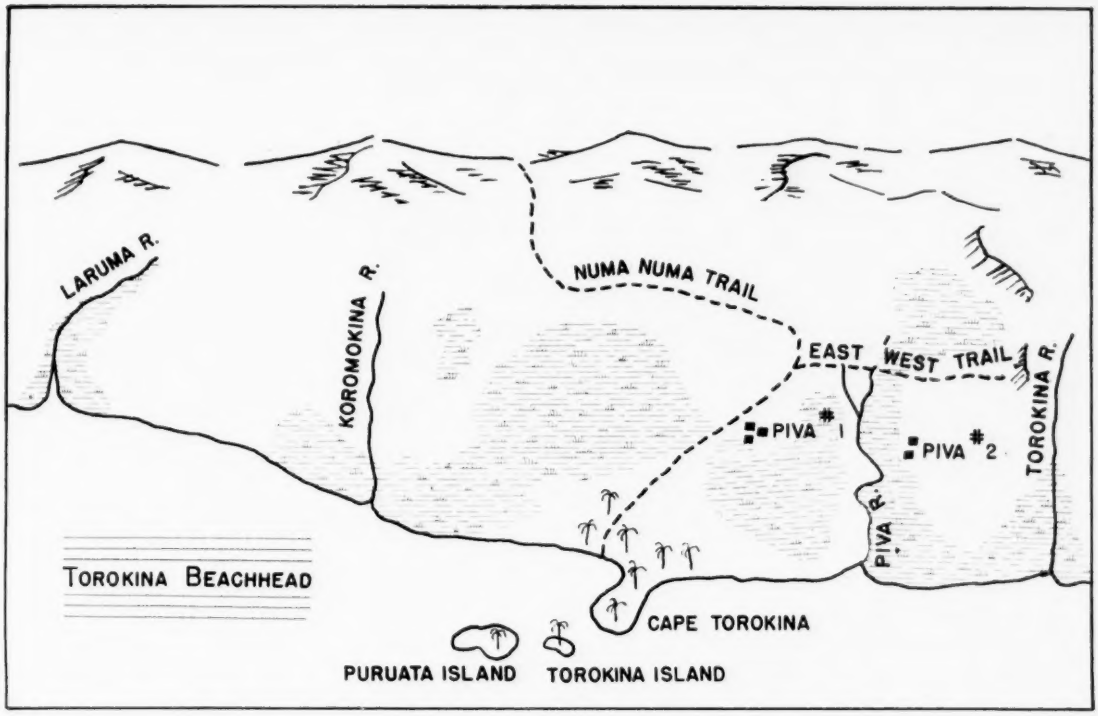
This division, like the other troops, had its headquarters around the Shortlands air bases, as it was considered that an American attack must be delivered in that area, though there was a full regiment to protect Kieta and something over a regiment in the region of Torokina on the southwest coast, where it was just possible that the Americans might put men ashore for an overland flanking effort in connection with their main drive at Shortland. The formation at Torokina was Col Kawano's 23d Infantry Regiment, supported in its position by the bulk of the 6th Artillery, the divisional force. The regiment had been in that station for nearly a year now, had become thoroughly familiar with the ground and had dug itself in with the semi-submerged, grown-over coconut log bunkers and pillboxes that had proved to be successful on New Georgia.

THE NATURE of the position was this; at a point southwest of the Torokina River the main coastal trail cuts inland to avoid a vast tropical swamp which picks up a few hundred yards inside the foreshore and runs to the foothills of the central mountain, over a mile. This swamp is always deep in water with mud beneath it and huge trees growing up out of it, bound together with thorny vines, a natural abatis. The swamp is split by the small Piva River, along whose western bank is a narrow strip of dry ground. A trail, the only one crossing the central ridge of the island, comes across from Numa Numa and Kieta, past the source of the Piva to meet the coastal trail at Piva Forks. Regimental headquarters was there with a system of defense around it. From Piva Forks the double trail runs almost due south with swamp on its right, river and swamp on its left, to Cape Torokina, there becoming the coastal trail once more. The Cape itself was provided with a bunker system well thought out and with good interlocking fields of fire—Col Kawano had been beseiged by the Chinese during the Hankow operation and knew the importance of this. The island off the Cape, called Motupena by the Japanese, was similarly provided with defenses from which the shore could be swept where it curves away northwestward. Beyond this point up to the Laruma, the coast fell out of the area of Col Kawano's command, but he noted the surf was always bad there and did not think he should worry about it.

III

THERE WERE SOME CHANGES IN MARINE commands during the period of preparation. Gen Vandegrift was going home to be commandant of the whole Marine Corps, and after the preliminary planning was done, turned over the I Amphib to MajGen Charles D. Barrett; but three weeks later Barrett suddenly died and on 8 October Vandegrift had to take command again, with MajGen Geiger, the aviator, as his deputy and heir-apparent to the command of the Amphibs. This did not disturb any of the other arrangements, such as those for air bombing which was begun in force on 15 October, with B-24s attacking Kahili and Buka Fields daily and fighter sweeps from Vella Lavella to keep any Jap planes on the ground, which was pretty successfully done.

On 30 October Gen Vandegrift boarded the transport *George Clymer* and the campaign was on. Next morning Tip Merrill with his four cruisers (*Cleveland, Columbia, Montpelier, Denver*) and Arleigh Brook's "Little Beavers" of the famous Desron 23, pushed out of Purvis Bay and ran fast up the southern flank of the Solomons to give the Buka airfields a heavy shelling, still further to keep Jap planes on the ground. There were still some snoopers about. They saw the transport fleet coming before dawn of 1 November and alerted all Japanese commands, which stood to their battle stations while Gen Kanda of the 6th Division got off a message saying that an American attack on the Shortlands was commencing. He still thought so at daybreak; the streamlined shapes of Merrill's cruis-



ers caught the first light as they ran in on Shortland Island and began to shell.

Col Kawano at Cape Torokina could see with equal clarity 12 transports push into Empress Augusta Bay and dish out amphtracs, while destroyers ran past to shell his positions and dive-bombers came down from above. At 0710 the race to the beach began; the landing craft immediately came under a heavy cross-fire from Puruata Island and the Cape, the latter supported by a 75 so well hidden that neither ships' guns nor bombs could do anything about it. This fire hit the 1st Battalion, 3d Marines and the 2d Raider Battalion hardest; blew up the command boat of the former, smashed five others, and so disorganized the landing waves that no group reached the beach in precisely the place or order assigned to it. The fire was not heavy enough to halt the marines (though it killed LtCol Joseph P. McCaffery of the 2d Raiders almost as soon as he set foot ashore), but it drove men out of position in little groups so that even squad leaders could not gain control of their commands. But now the careful briefing told; the men recognized the ground they were on, knew what was to be done there, and followed any leader they could find toward their objectives.

Sgt Robert Owens of the 3d personally disposed of the 75 by worming into the firing port of the bunker and driving the crew out the back, getting himself killed and a Congressional Medal for it. The other bunkers were one by one reduced in a rifle-knife-grenade fight, the cross-fire became disorganized, and by noon most of Cape Torokina was in our hands. The 2d Raider Battalion pushed patrols out along the solid ground by the trail to Piva, finding ever more defenses and making it evident that any Jap reinforcements would come from that direction. The 3d Raiders spent all day in a hard fight to subdue Puruata.

Meanwhile, the 9th Regiment on the left had encountered special difficulties. The surf was high on all three of its beaches and immediately behind the surf line was a 12-foot bank. Boats and tank lighters began to broach and be swamped as soon as they approached the beach, 86 of them altogether, including almost the entire equipment of the three transports working the area. Before a third of the trips from the ships were made, these beaches had to be abandoned and the men of the 9th with all their supplies put ashore by means of other ships' boats on the beaches already occupied by the 2d and 3d Battalions, 3d Regiment, to march along the beach to the positions intended for them. These two battalions of the 3d worked rapidly across the beaches and sent their patrols

Marines man heavy machine gun in captured Jap position on Hill 600, Bougainville. Fierce Jap counterattacks from land and sea were repelled with heavy enemy loss.

out towards the assigned phase line for the first night, some two hundred yards inshore.

They encountered the swamp. The men were never less than knee deep in mud and water and sometimes right up to their necks. Thorny vines tore at them, there were occasional Jap bullets, and the vegetation was so thick that it was almost impossible to maintain communications even straight back to the beach, while as for obtaining liaison with formations to the left and right, it was flatly impossible.

While this struggle was going on, Gen Turnage brought the 1st Battalion, 9th, down to Cape Torokina to cover the flank of the 1st Battalion, 3d, now pushing along the more solid ground toward the Piva. The force buttoned up for the night, landing successful, though it had been all hand work with the value of the fire support negligible.

There was still some apprehension that night. During the afternoon a big Jap air raid came down, the transports had to cease unloading and move out to sea, while many of the supplies did not get ashore. The original allotment had been so slender that this looked bad. To complicate matters still further there had been so much confusion due to the three useless beaches, the swamp and jungle behind, all had proved so unexpectedly tough that it was very hard to move or even to sort the supplies that had come ashore. Under the tropical twilight artillerymen, engineers, signalmen, and even medical detachments toiled at the job, cursing fervently. After dark it clouded up and came on to rain; some of the men in outposts had to sleep sitting up in water to their waists and a general blackout was imposed, under which at least one roving Jap tumbled into a fox hole on top of a Raider, who stabbed him as he squealed in excellent English, "I'm too young to die." Under that same night here were lightning flashes and a rumble of thunder from seaward; a phone at the CP rang and the officer who answered it repeated:

"Condition black—You may expect shelling from enemy ships followed by counterinvasion."

It was not thunder; the reconstituted Southeast Area Fleet had come down from Rabaul to break up the landing—heavy cruisers *Myoko* and *Haguro*, light cruisers *Sendai* and *Agano* with eight destroyers—and out on the midnight water were locked in battle with Tip Merrill's Hollywood Squadron, their inferiors in guns, speed, armor. But when dawn of 2 November broke it was the Japanese condition that was black; *Sendai* and two of their destroyers were on the bottom and 31-Knot Burke was chasing the rest back toward Rabaul, in such shape that they would stay in dock for a long while. Only one of our destroyers was badly hurt; and that morning of 2 November, when the air forces from Rabaul came down with a group of 67 planes to sink the American "cripples" (instead of going for the piled supplies on the beachhead, where

they might really have achieved some damage), Merrill's squadron shot down 17 of them and sent the rest back empty-handed.

IV

DOCUMENTS FOUND ON THE BODIES AT CAPE Torokina showed pretty clearly what the Jap order of battle was and that a counterattack might be expected from Piva Forks if at all. Gen Turnage accordingly brought the 2d Battalion, 9th, down to join the 1st at the Cape, pulled the 1st Battalion, 3d, back into reserve (it had taken most of the comparatively light casualties—39 killed, 39 missing, 104 wounded that first day); and brought the other Raider Battalion over from Puruata Island to form a solid front with its strength on the right. That day and the next and the next were spent in edging through the swamps, the worst country the marines had ever seen or ever would, while Seabees and bulldozers toiled at the immense task of building roads. For the time being amphtracs were the only vehicles that could move; most of the supply was by hand.

Gen Turnage intended to bring the remaining battalion of the 9th also down to his right flank, but lateral communications being what they were, the move had not yet been made when the second echelon arrived on 6 November—3,548 men comprising the 1st Battalion, 21st Marines (LtCol Ernest W. Fry) and the advance elements of the 37th Infantry Division. Perhaps it was just as well the shift had not been made; while the transports carrying these troops were lying offshore, Gen Hyakutate tried his counterattack.

One of the most remarkable things about this officer was his persistence in the single plan of action he had worked out for destroying American beachheads. At the same time the 6th Division was added to his Army he acquired another from the forces in China, the 17th Division, which had been in the Hankow campaign and was rated as veteran. A good many of the troops of this unit had already been forwarded to southern New Britain to meet the MacArthur menace across the Bismarck Sea, but there was something better than a regiment of infantry with a couple of machine cannon companies at Rabaul. These he intended to land at Atsinima Bay and the mouth of the Laruma, just beyond the American west flank. They were to hack trails into the interior of the island and come

Advancing marines were slowed down by mud and water often neck-high. They found it almost impossible to maintain adequate contact with the beach or their flanks.

down from there on our perimeter, infiltrating and acting as guerillas, while Col Kawano would be reinforced up the trail from the Shortland area by part of the 45th Regiment and deliver a heavy attack from Piva. Hyakutate estimated the American force ashore as 7,000 (actually it was nearly 18,000 by this date) and though the number of his own troops was less, still thought the balance would be made up in spiritual power.

IT WAS THE GUADALCANAL PLAN used by Kawaguchi and Matsuyama with variation in two details only. Adm Kondo was persuaded to send down the heavy cruiser force of the 2d Fleet, which should be ample to wipe out the remains of the American cruiser squadron in the area, and at the same time to subject the beachhead to a powerful preliminary shelling that would make Kawano's task easy. Unfortunately there was a shortage of destroyers since the battle of the 1st and they could not be used to carry in the 17th Division troops. These men would have to travel by barge and landing boat. As there was also a shortage of barges, the troops would move in three separate echelons, the 1st on the night of 6 November.

Now as we have seen, the cruiser force got itself caught in Rabaul by the air groups from *Saratoga* and *Princeton* and was so used up it was eliminated from the combination. But even if Hyakutate had not followed the normal Japanese method of going ahead with the plan when one of the legs that supported it had been cut off at the hip, it was now too late to recall the first echelon from the 17th Division, some 1,200 of whom were toddling along in their barges toward Atsinima Bay.

They reached it during the night of the 6th. A couple of barge loads became confused in the dark on an unfamiliar shore and landed east of the point where the Koromokina River spreads into a lagoon at the water's edge—that is, behind a strong outpost of the 9th Marines. Firing broke out there at dawn, the outpost began to retreat east, but found the Japs were too numerous and had to be taken out by sea, though not before they had eliminated some 35 of the enemy. The Japs who landed in the right place pushed across the Laruma, made contact with the advance group, and dug in along a line facing the west flank of the 3d Battalion, 9th, about 150 yards distant.

Whether they were waiting for the remaining echelons of their group before attempting the move up country was uncertain; they may have been too closely held in combat by the marines, for Gen Turnage had plenty of force at his disposal and promptly attacked. A pair of PT boats ran along the shore and shot up the barges with whatever supplies had reached the beach.

On the afternoon of the 7th, the 1st Battalion, 3d, moved from regimental reserve through the left flank company of the 3d Battalion, 9th, and attacked the hastily constructed Jap positions. The attack went all right but they could find no tenable line so withdrew and went into defense west of the Koromokina. Meanwhile, the 1st Battalion, 21st, which had been landed on the right the day before, was shifted by boat to the left flank reserve area. The next day, the 8th of November, after a 20-minute preparation by five batteries of artillery, the 1st Battalion, 21st attacked, passing through the lines of the 1st Battalion, 3d. It was easy going. The artillery barrage had caught the Japs by surprise; most of them were dead. The few Japs who escaped the fighting all died off in the interior from disease and the activity of the Fiji Island scouts who prowled the area. Our loss—16 killed, 30 wounded.

V

ON THE OTHER FLANK THE RAIDERS HAD penetrated some 2,000 yards by this time and had set up a road block on the trail from Piva across the mountains (the Numa Numa trail) about 500 yards west of the point where the two trails joined. Col Kawano had not received his reinforcements from the 45th Regiment, but he seems to have been an impatient man, and began an infiltration attack on the road block during the night of 5 November. The only thing it achieved was to bring all the Raiders to the front while on their side the Japs dug in with their flanks on the swamps.

There Col Shapley's men attacked them on the 8th and again the 9th under artillery cover. It was slow going, along a narrow and muddy causeway that tanks could not negotiate, but the fire power was on our side and the enemy continually raked by planes to which he could make no reply. On the 10th two battalions of the 9th Regiment passed through the Raiders, took up the drive, and carried it through Piva Village, wiping out its defenders. We lost 17 killed, 32 wounded; buried some 200 Japs.

Corps headquarters was now in and most of the 37th Division. The latter was given the old

left flank of the position with the mission of pushing beyond the swamps to the upper Koromokina, where some flat ground offered a site for bomber strips while the fighter strip was laid out on the Cape itself. The Marines took over the perimeter along the Piva, the 9th Regiment close to the shore, the 21st in the center, and the 3d on the left, next to the 37th Army Division. There was another Piva Village in this area, Piva number II, with an extensive coconut grove just north of it. The enemy's main positions seemed to be on the far side of the stream, from where he continually threw in an annoying mortar and rifle fire. The coconut grove and all the country north along the Numa Numa trail were *terra incognita*, except that an artillery reconnaissance party had been fired on from this region. On 13 November the 2d Battalion, 21st, was pushed out in this direction to develop the small Jap outpost expected to be found there.

The battalion encountered difficulties. LtCol Eustace R. Smoak, by order of Division, sent one company well in advance; it ran into a Japanese position in strength, was pretty badly shot up and reduced to the defensive. The remainder of the battalion had to be put in as fast as it came up to the rescue, that is, piecemeal, and then a second disengaging move made, after which the battalion dug in for the night. In the morning a squadron of planes combed the whole area with 100-pound bombs and the artillery laid down a beautifully accurate concentration, thanks to the intelligent action of a corporal who had counted his paces as he walked back wounded. Under this fire the battalion again went forth, but encountered more trouble when two of the accompanying tanks got lost in the dense vegetation and fired on our own troops, producing a momentary confusion that was less serious than it might have been because the intensity of our fire kept the Japs pinned down. By evening both the grove and Village Piva number II were taken and there was only a little mopping up still to do. Loss: 9 killed, 42 wounded; Jap dead counted, 19—but there were plenty more all right, never found under the jungle. It had been the main Jap position in the area, the junction of the two trails.

It was a position which Col Kawano was nearly ready to abandon in any case. He had thrown a road block across the Numa Numa trail and had a reinforced company holding it, with the

Few Japs escaped the thorough Marine mop-up. Those escaping to the interior died either from disease or the activity of Fiji Island scouts who patrolled the area.

bulk of his forces, now including some of the 45th Regiment, well back on a series of north-south ridges east of the east fork of the Piva.

All this area fell within the designed limits of the perimeter since from the high ground the proposed airstrips could both be observed and fired upon by light guns. On 11 November the moves began to take it away from the Japs, with the 3d Battalion, 3d, moving north, parallel to the Numa Numa trail on one hand and the advance elements of the 37th Division on the other. The Marines had to work forward slowly, their supply problem being acute thus deep in the roadless jungle, but on the 15th their left made contact with the 37th Division men, behind whom the Seabees had now built a road up from the beachhead circling the swamp. On 17 November the battalion located Col Kawano's road block; at the same time the 2d Battalion, 21st, found a Jap outpost between the two branches of the Piva.

TWO DAYS LATER the 3d Battalion, 3d, went forward with light tanks; bypassed the road block, hit it from its flank and drove its defenders out. They counterattacked the battalion from flank and rear the following morning, but LtCol Ralph M. King, commanding, had expected exactly that and shot their hearts out, pursuing eastward right across both forks of the Piva. Here he found a prepared position, a long line of fox holes rather hastily dug, but now without troops enough to man them effectively. The battalion attacked at once, carried the position, and found it had taken a covering position for the main Jap defense line east of the Piva.

Meanwhile, the 2d Battalion, 3d, had passed through the troops along the east-west trail, reduced the outposts between the river forks, and crossed to the east bank, getting mortar and machine gun fire from a series of pillboxes. A platoon under Lt Steve J. Cibik working slightly leftward, began to climb under fire and beating it down. They presently found themselves atop a 400 foot ridge from which the entire Empress Augusta Bay region was visible. There was not much opportunity to enjoy the view; the Japs immediately attacked in force and Cibik's command was gradually built up by small reinforcements till over 300 men were involved in some pretty desperate fighting before the Japs gave it up and our command began to construct a regimental line involving the ridge.

It was now the evening of the 21st. The 2d Battalion, 3d, had its ridge ("Cibik Ridge" it was later called) but was unable to get any farther into the Jap lines and that night was relieved by the 1st Battalion of the same regiment. As the 2d was moving to the rear the enemy heavily counterattacked the salient that had been thrust into their lines; the 2d Battalion had to stay on the job and gladly accepted the assistance of a heavy patrol from the 21st which was next in line. The positions held, and all the next two days were spent by observers spying from Cibik Ridge, registering Jap installations for shots by the artillery, preparatory to the breakthrough attack. Col George W. McHenry of the regiment noted with pleasure that the Jap positions had been mainly set up facing south to resist an attack toward the hills. He proposed to sweep right down the main trail, taking each in flank.

The attack jumped off on the morning of 24 November, the 2d and 3d Battalions abreast, after an artillery concentration of no less than seven battalions, which was considered the heaviest barrage marines ever had to help them. They needed that much; most of the prepared positions were found occupied only by the dead, but the Jap artillery was both accurate and in strength. It inflicted the heaviest casualties of the campaign on the 3d Regiment men and when they had penetrated 500 yards they were counterattacked on both flanks by the Jap reserves. There was a hand-to-hand fight that lasted till nearly twilight and died down only because of lack of material. Col Kawano was dead by that time and his regiment had joined the list of *zemetsu*. It was the last heavy fighting while the marines were on that line.

VI

THEY WENT LOOKING FOR ACTION ON THEIR own, however, and found more than they wanted. Scouts and coastwatchers brought reports that the Japs had some men at Koiari Beach, where Empress Augusta Bay turns wide to the southward, ten miles down. On 29 November Maj Richard Fagan's 1st Parachute Battalion, reinforced by a company of Raiders, was thrown on the beach there to see what could be done about it. Apparently the Japs were expecting friends; an officer waded out and began a conversation. "There is no record of his subsequent proceedings," says the report, dryly. But that was the end of the easy going; the Parachutists and Raiders had no sooner installed themselves in a little perimeter of 350 x 180 yards ashore when they

began to get heavy rifle, machine gun, and mortar fire from every direction, followed by Jap attempts to break into their lines. By noon it was evident there would be no raiding that day; by early afternoon Maj Fagan was requesting evacuation.

THE JAP FIRE continued to increase in intensity and the Parachutists, who were old hands and knew what they were talking about, estimated there were between 1,000 and 1,200 of the enemy besieging them. The fire became so heavy that the boats could not work in. Things began to look bad; ammunition was nearly gone and so small a perimeter would be very difficult to hold in the dark. But now some planes came over and the destroyer *Fullam* worked along the shore. The latter proved an excellent gunnery ship, a battery of 155s in the Torokina beachhead opened up from long range, nicely directed by an artillery observer with the Raiders, and they got out through the twilight with 22 men killed, 99 wounded. Maybe the Jap casualities were heavier but the operation was no success—defective preliminary intelligence again.

That was the campaign as far as the Marines were concerned. They began to be pulled out on 21 December as the Americal Division moved in and a week later the exchange process was complete, the whole area being turned over to the Army XIV Corps. It had been a highly successful affair, with 390 killed, 1,097 wounded of Marine forces (the 37th casualties were negligible) against the wiping out of the Japanese 23d Regiment and the 1,200 men they tried to land in our rear. But the count on casualties does not tell the story; the essential airfield had been taken, the three Jap bases on Bougainville knocked out, and Rabaul converted into a ghost base by the pinch between Empress August Bay and the positions MacArthur had seized.

Looking upon it as a whole, one cannot but be impressed by the manner in which the difficulties encountered in the earlier jungle-island campaigns had been overcome, the errors made in those campaigns eliminated. Bougainville was the Guadalcanal attack as it should have been delivered. Of course, at Guadalcanal the means were lacking to make the attack this way. There was no strong force of cruisers and destroyers patrolling the beach every night to keep the enemy from landing reinforcements. (The enemy did try once during the campaign, with five destroyers while the marines were fighting for Cibik Ridge, but Arleigh Burke's Little Beavers caught them off St. George's Channel and sank three of the Jap ships without losing a man.) At Guadalcanal we had no command of the air. The 3d Marine Division counted that it was bombed 90 times during the operation and was inclined to feel abused about it, but on Gen Vandegrift's island they used to have that many Jap air raids in a week. But above all, the success of the expedition was due to the fact that the strategic use of the amphibious forces had been better learned. The enemy's strength ashore was underestimated at Empress Augusta Bay, the position was not at all what either scouting or air reconnaissance had promised it to be (that swamp!) but these errors made not the slightest difference. Neither did the fact that there was trouble about getting supplies across the beachhead—the one problem not yet solved.

The place was expeditiously and cheaply taken and it was ultimately held by the same means of perimeter defense as that at Guadalcanal. The method is certainly not suited to the general conditions of land warfare and is probably only valid for the special case of amphibious work in thick country.

THE JAPANESE helped us prove that it is valid for such cases. They managed to assemble their forces around the Bougainville perimeter at the end of February and in early March 1944—for an attack down the ridges on the land side of the position, as one might expect from Hyakutate, who directed the operation from Rabaul. The fighting lasted three days; once the Japs got as much as 75 yards into our lines but the overall result was the same as at Guadal. They went trailing back into the jungle, losing men at every step from malaria and enteric, since it had been impossible to move supplies up with their troops, the medical stores were all gone and no more reaching them across seas now thoroughly in our control. At the end of that year there were not 12,000 left of the whole Jap force on Bougainville and those who were left were devoting their attention to sweet potatoes. "The seasons do not change," said the commandant of Truk, caught in a similar situation at the same time. "I try to look like a proud vice admiral, but it is hard with a potato hook in my hands. It rains every day, the flowers bloom every day, the enemy bombs us every day, so why remember?" In Japanese it forms a poem.

To be continued

Base Plate McGurk Expounds . . .

Appearances Are Deceiving

THE OTHER NIGHT AT THE BOQ BAR I heard an opinion expressed to which I took violent exception. One member of our symposium glumly stated that to build a reputation, an officer had to be a born leader, with a college background of All-American half back, class president, and Rhodes scholar, also side accessories such as swell personality, good looks, and the ability to fill inside straights.

Now there's no disputing that the big, good looking, personality-plus guy has the initial advantage over the less-impressive average mortal, but it is my contention that practically anyone can learn to be a leader and the question of size, appearance, and brawn has no more to do with it than the subject of head space adjustment has to do with splitting the atom.

There are little insignificant guys who made the grade and there are big men who failed because they relied too much on their God-given gifts. I can think of lots of examples and just as many exceptions, but two lieutenants that I served with at the war's beginning illustrate my point best.

The first bird's name was Tuff. Irving Mitchell Tuff. Why his folks gave him such a handle I'l never know—maybe family names or something. Anyhow, he was called by his initials which, of course, sounded like 'I am'. So there we have it—starting in the Marine Corps and being known by the name of 'I am Tuff'. Strike one. . . .

Strike two, his looks. Believe it or not, most of us didn't know he was in the outfit until we had a farewell party out at Elliott just before we left for Guadal. This character was not particulary funny looking or anything like that, but he was damn insignificant looking. He wore glasses, his uniform gave the appearance of being too large, and it seemed unlikely that he would be able to pass the physical for the Beaver Patrol of Cub Troop number two. Yet, there he was in our outfit and he had command of one of the rifle platoons.

By the time we had reached our staging base in New Zealand, our opinion of Tuff had risen considerably. The chief reason for this was the practice our company commander had of pointing Tuff out to us constantly as being the best lieutenant on the ship.

On second thought, that wasn't the main reason that we realized Tuff was good. Whenever we passed through his section of the compartment we could see his efforts reflected in the appearance of his platoon's area. Little things like all of the gear being stowed the same way on the bunks, no loose articles on the overheads, no holes punched in the ventilating pipes, no wet swabs stuck in a corner. In fact, he was just carrying out his orders and his area always showed it. I'm ashamed to admit that one day as I was passing through his area I stopped to inspect one of his men's rifles that was hanging on the bunk. I thought that I was sure to find a little rust on it and by so doing I figured that my conscience would stop bothering me. However, as you can guess, that rifle was as clean as a whistle and so were the three next to it.

Furthermore his men looked better than the rest. He was always with them: holding school, or supervising a weapons cleaning period, or supervising them turning in or drawing their laundry, or judging push-up and rope climbing contests, and so on. He even watched them get their hair cut. The few barbers on the ship couldn't get to everybody, but brother Tuff didn't let that stop him. Whe he figured his men needed to have their ears set out, he would lure one of the barbers onto the fan-tail and the poor guy couldn't get away until every man in the platoon was shorn.

Now don't get me wrong. His men had plenty of time to themselves and Tuff never interfered with their time off. But, brother, during the

The little guy with glasses proves that it isn't always the brawny Adonis who is the best leader. The Adonis in this story discovers that the buddy-buddy attitude doesn't work with men; they want respect and leadership from their commanders

working day he was right there with them and he was always well organized. None of this "Well, let's see, what'll we do today" stuff for Tuff. He was definitely a "Today we will do the following" man. Furthermore, although he always seemed happy to receive suggestions from his NCOs and gave them plenty of consideration, he made the decisions. In other words, there was never a doubt in anyone's mind as to who was running that platoon. He wasn't arrogant or pig-headed about it, but he was definitely the boss man of that platoon.

We couldn't deny that Tuff didn't spend as much time in the wardroom or in his sack as we did and as a result his platoon looked snappier, seemed happier, and lived in the cleanest compartment. However, we consoled ourselves by saying "Wait until we get into combat and then we'll see who is the best lieutenant." Some of us felt very noble and generous by stating that Tuff was definitely the best nurse in the outfit but that it was a shame his troops would probably not follow him in combat and repay him for all his thoughtfulness and extra effort on their behalf.

By this time, we had grown to like Tuff personally although it was still great sport to kid him. I think that the general feeling about him was that he was a nice little guy who was trying hard to do his job and keep up with the rest of us. If Tuff was aware of our opinion, he certainly didn't show it. He just went along being nice to everyone and causing all of the company commanders to give us hell for not doing as good a job.

HOWEVER, we still didn't agree with the senior officers in the battalion concerning brother Tuff. Although we spent over a month training in New Zealand, within two weeks it was obvious even to us that he had the best trained platoon. Naturally we were only too glad to give his platoon sergeant credit for this and talked up such a storm about how outstanding this NCO was that the old man finally obtained a field commission for him. It seemed a foregone conclusion that the ex-platoon sergeant would take over his platoon and that Tuff would be sent up to division or some place. We were quite surprised when Jim Williams shoved off for parts unknown and Tuff held on to his platoon.

To make a long story short, we finally arrived at Guadalcanal and Tuff was a ball of fire. Maybe ball of fire is a bum expression to apply to him since he was not flashy or noisy, nor was he gifted with the ability to dream up catch phrases and sayings for posterity. But he was a leader, and a real one. He was cool, calm, and confident. He knew his business and his men were aware of it. They knew what to expect from him, and he, in turn, knew what he could expect from them.

ONE DAY we were moving up the coast and had just relieved an Army outfit near the Poha river. Although our allies had assured us that there were no Japs in the vicinity, we set up local security and threw out a patrol to the front. Before the patrol had covered fifty yards we found ourselves in the nicest little scrap imaginable. The Nips were in the trees and on three sides of us—the open side being the ocean. Although there were not very many of them and the ambush only lasted about an hour, everyone was pretty excited—that is, everyone but Tuff. To watch him you'd think that he had been expecting to be ambushed. In about two minutes flat he had one his squads functioning as antisniper teams. He must have had an SOP on that because I was watching him and all that he did was point to one of his squad leaders and then point at the trees. Within a few seconds the squad had

BASE PLATE MCGURK *in these last few months has established himself as an outspoken expert on small unit problems. If any of his readers have problems of their own they would like him to discuss—or if they take exception to his views—McGurk may be reached by addressing a letter to him in care of The Editors,* MARINE CORPS GAZETTE.

fanned out in pairs just behind his other squads and it wasn't coconuts that started falling out of the trees. Next he pointed at another squad leader and then at a clump of heavy bushes. Immediately this squad started firing into this target as though they were all armed with BARs. He didn't even point to his third squad. He just started moving on a course that would envelop this clump of bushes and they were right behind him.

I'll admit that at that time the only pointing that I was doing was with my tail at the sky. Anyway, my squad leaders were following my example and I couldn't catch the eye of any of them. Finally, by moving to each one of them in turn and after explaining in a few thousand well chosen words what I wanted done, I managed to get my platoon into action. However, by that time the show was over and while my men picked up the souvenirs, Tuff's men received his compliments on their performance followed by a short friendly talk on how they could do it just a little bit better the next time.

After that we admired Tuffy and asked his advice and help. He knew that he had finally proven to us that he was a real leader and, incidentally, had made us all look like a bunch of saps. He in no way took advantage of this knowledge though and as a result became the most respected and popular lieutenant in the battalion.

A LIEUTENANT we will call Bill Smith because that was not his name was a fine looking officer. His physique plainly showed that he was an excellent athlete, and his bearing indicated no lack of self-confidence. He was pleasant, cooperative, and possessed an engaging personality. His enthusiasm and energy were the envy of many of his fellow officers. Nor was Bill lacking in either intelligence or initiative, since he proved himself to be above average in both of these characteristics. In short, within a few weeks after joining the company, he was considered by both his seniors and his contemporaries to be an outstanding officer.

The first indication that something was lacking in this almost perfect officer came when the company executive officer heard him calling his men "fellows." "Now fellows," he would say, "gather around me. Joe, you look kind of sleepy. No, don't stand up; I tied one on myself last night and know just how you feel. These Wellington gals are really hot stuff. You stay there, Joe. Tom, you take some fellows and go pick up the guns at the gun shed. The rest of us fellows will go over to the galley and bum some coffee while we decide what to do this morning."

This, it was carefully explained to Lt Smith, was not the way to handle men. The second time a similar occurrence was noted, the company executive officer explained in detail that marines are not college boys, that a platoon is not a football team, that men prefer that their officers maintain a certain amount of dignity and that their NCOs and officers treat them with the dignity due to men rather than with the "buddy stuff" so successfully employed in the Boy Scouts. Furthermore, the exec stressed the fact that there can only be one man making the decisions for the platoon. And, although it was wise for him to consider the opinions of his NCOs, it was definitely bad dope for him to take a vote of the entire platoon. As the exec put it, the platoon leader is trained and paid to command the platoon and that both the men under him and the officers over him expected him to accept this responsibility.

Within a short time the senior NCOs in the company came to the company executive officer and respectfully suggested that if Lt Smith did not change his ways, his platoon would be worthless. Furthermore, none of them desired to be his gunnery sergeant or in any way be connected with him. They were embarrassed by his too friendly attitude. His habit of patting them on the back, discussing other officers with them, and calling them by their first names were undermining their position in the company.

This time the conference between Lt Smith and the company executive officer took place in the presence of the company commander. After carefully explaining and covering all of the points previously brought out by the company executive officer, the company commander went on to explain that non-commissioned officers work hard for their ratings, are proud of their responsibilities, and very properly expect and must receive respect from those under them and the officers over them. He ended the conversations by saying, "Furthermore, Smith, there are too many chiefs in your outfit and not enough Indians. See to it that there is only one chief and you know who that had better be."

Incidentally, the company commander was confident that Smith knew his stuff. Being a good CO, he required his lieutenants to take turns lecturing at the weekly company officers schools and at the semi-weekly company NCO schools. Smith always gave a well-prepared

period of instruction that showed enthusiasm and imagination. Even the old-timers couldn't trip him up with their questions.

On the other hand, the company exec didn't trust all this show. He remembered only too well that Bill had been one of the 'wardroom boys' aboard ship and had believed firmly in the theory that the men should be left alone so as to better enjoy the cruise.

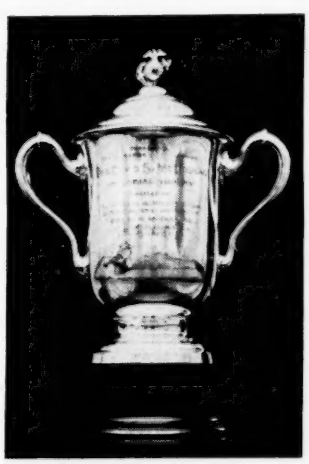
Well, during that ambush that I described before, Bill was even sorrier than the rest of us. He made plenty of noise all right and he wasn't afraid. He ran around yelling "You fellows do this and you fellows do that." Only trouble was that his "fellows" didn't want to do this and that. They wanted to talk it over and take a vote on it just like they did during training when their platoon leader had asked their opinion as to whether they should have gun drill or drink coffee. In other words, most of his men had come to feel that they too were "Indians chiefs" and, as a result, no one wanted to be just a plain "Indian." Finally, the company exec stepped in and straightened out that little mess.

After we returned to New Zealand, the company commander called Smith in and went over the whole story again. However, before the sun set, Bill was bending the ear of the company executive officer as follows: "My fellows," he breathed confidentially, "are really good kids. I don't believe in this officer-enlisted men differentiation. I don't care what the NCOs say, I know I'm right. I've got the happiest platoon in the company and just because they get fouled up once in a while and don't salute officers, doesn't mean anything. I don't want them to respect me; I want them to like me."

Aboard ship on the way back to the States, Lt Bill Smith must have done a lot of thinking. At least, his letter indicated as much since it seemed to show that he finally realized that an officer can be popular with his men and at the same time have their respect. He also seemed to realize that although Pvt Brown is only 18 years old, he prefers to be called a man and treated like a man rather than be called a "fellow" and treated like an 18-year-old. His most important realization, however, was that there can only be one 'Chief' in each outfit.

The letter I'm referring to is the one in answer to his unsatisfactory fitness report. US MC

McDougal Memorial Trophy



MARINE CORPS MARKSMEN HAVE A NEW TROPHY to shoot for, the donation of the family and friends of the late LtCol David S. McDougal who was killed in action on 14 June 1945 on Okinawa.

MajGen D. C. McDougal, Ret'd, father of Col McDougal, presented the trophy to the Corps at a ceremony on 12 April at Camp Matthews, San Diego. The trophy will be a perpetual award to the annual winner of the Marine Corps Rifle Match. The winner will be presented the trophy and a special commemorative medal. The trophy, after proper inscription, will be on display at Headquarters, Marine Corps, during the year.

In the history of Marine Corps marksmanship Col McDougal was an outstanding shooter. He fired in seven Marine Corps Division Rifle Matches and won three of them, placing fourth in two others. He holds the Marine Corps Division Rifle Match record. He fired on the winning National Match team in 1940. His most unusual record was established in the National Matches in 1937 when he won the Crowell Trophy over almost 2000 shooters, setting a new record of 15Vs at 600 yards in a match allowing any rifle with iron sights and any ammunition. Col McDougal used his Springfield '03. The record still stands. US MC

A MILITARY DIGEST

Jet Information Please

By William P. Brotherton

Q. *How do you start the jet engine in an airplane?*

By pressing an electric switch in the throttle lever which activates two spark plugs adjacent to the combustion chambers and pumps fuel into the chambers. The fuel is ignited, the exhaust spins the turbine which spins the compressor and feeds air to the combustion chambers. All of the other chambers are ignited by the original two and as soon as the temperature rises sufficiently, the chambers become self-igniting and the spark plugs are cut out of the ignition circuit by a relay.

Q. *How is a jet propelled plane stopped?*

Jet planes are controlled by fuel fed to them. This is regulated by a throttle much the same as the piston engine throttle. Cutting the fuel off kills the engine.

Q. *What fuel can be used in the jet engine?*

Any hydrocarbon such as coal, kerosene, hair tonic, gasoline, and so on as long as it can be blown through a nozzle and burned.

Q. *How hot is the jet blast?*

The jet blast leaves the airplane at about 1,000° F. temperature.

Q. *How close can a person stand in back of the jet tailpipe?*

In a direct line with the narrow jet blast, a person should not get closer than about 150 to 200 feet.

Q. *Does the jet blast burn the runway?*

The jet blast does not burn the runway because it is directed out parallel to the paving due to the attitude and advantage of tricycle landing gear.

Q. *What are the temperatures in the combustion chambers and at the turbine?*

Around 1,300° F.

Q. *How is the plane protected from the heat of the jet engine?*

By a sheet of air which is allowed to pass around the jet engine assembly and the tailpipe and exit at the jet nozzle. Also, the tailpipe is wrapped with alternate layers of stainless steel wire and aluminum foil.

Q. *What metals are used in the jet engine's turbine and combustion chambers?*

Very high temperature resistant steels such as vitallium and Hastelloy B, alloys of nickel and molybdenum steel.

Q. *Why doesn't the jet blast go out the front of the engine?*

Because there is a pressure drop through the engine from nose to tailpipe coupled with a tremendous velocity increase. The highest pressure is experienced in the compressor.

Q. *How many parts does the jet engine have?*

One major moving part and about a tenth as many other parts as the piston engine.

Q. *How does the weight of the jet engine compare with that of the piston engine?*

It is roughly about one half as heavy as the lightweight piston engine and propeller for similar power output.

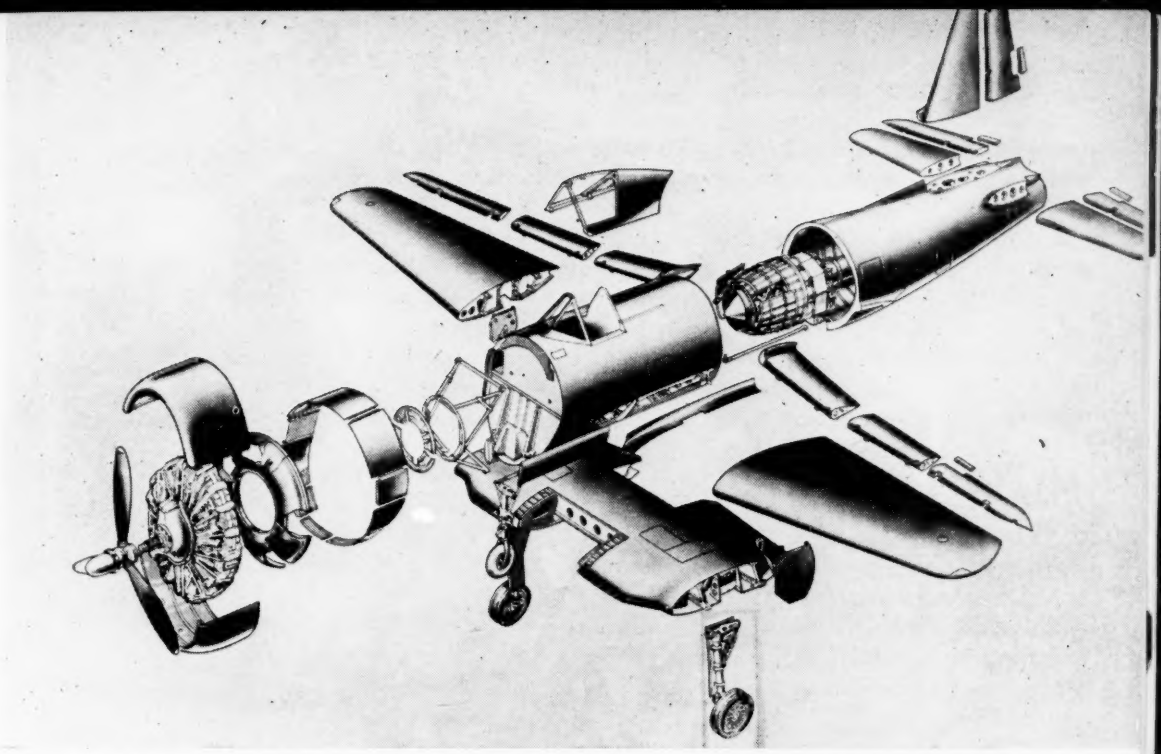
Q. *How does the jet engine's fuel consumption compare with the piston engine's?*

Within the piston engine's speed range for aircraft, the jet engine uses considerably more fuel. In the jet engine's speed range, which has not been capitalized upon because of the frailty of air frames, the jet engine is actually more economical. At about 550 mph the jet engine begins to use less fuel than the piston engine and propeller for the same job.

Q. *What is the horsepower of the jet engine?*

The jet engine does not work in the sense that it turns wheels, pushes pistons, or spins shafts. It

U. S. AIR SERVICES, March 1947



Exploded view of the Ryan Fireball. The FR-1 is powered not only with conventional piston engine (1350 HP Wright Cyclone) but with I-16 thermal jet engine as well.

develops thrust by accelerating huge volumes of air. Its effectiveness as a thrust mechanism increases with velocity. At 375 mph each pound of thrust it develops is equivalent to 1 hp generated by the piston engines. However, because the piston engine must turn a propeller to get thrust and the propeller is about 80 per cent efficient at 375 mph, the conversion point occurs at about 300 mph. At 500 mph, the propeller has fallen to an efficiency of 53 per cent and the jet engine pound of thrust is then equivalent to about 3 bhp of the piston engine.

Q. *To what horsepower can the jet engine be developed?*

Already the jet engine's output is as great as that of any other power plant which has been developed for aviation. No practical limit is in sight at this time.

Q. *What effect does hail or ice have on the jet engine operation?*

This was one of the first concerns of the jet engine builders and they say that hail and ice have no detrimental effect upon jet engine operation in flight.

Q. *How long does the jet engine operate before a major overhaul is necessary?*

This question is dependent upon too many factors to be answerable by any figure. Suffice to say that the jet engine requires overhaul, and that it is a much simpler and speedier operation, after a considerably shorter operational period, than the conventional engine. This is primarily due to the fact that metallurgy has not caught up with design in the jet engine's structure.

Q. *Doesn't a jet propelled plane run into compressibility trouble also?*

Yes, but usually at higher speeds than the conventionally-powered plane because it does not have a propeller and can be streamlined into a more suitable aerodynamic configuration.

Q. *Can the jet engine explode?*

It is difficult to see how the jet engine could explode because the pressures developed are considerably less than in either the gasoline, diesel, or steam engines. If the terminal rotational velocity of the turbine were exceeded, the mechan-

MR WILLIAM P. BROTHERTON *is an employe of the Ryan Aeronautical Company. Recently he made a series of over 125 talks on jet propulsion to such diverse groups as business men, women's clubs, engineering societies, high school groups, farmers, and professional men. This article is a compilation of the most significant and frequently asked questions.*

ism would fly apart and disintegrate but this would not be a true explosion.

Q. *Does the jet plane leave a trail of flame or smoke in flight?*

In flight the jet propelled plane shows no telltale spurt of flame and exhibits a very thin trail of gray smoke which is almost imperceptible. The presence of more than this amount of smoke indicates improper combustion.

Q. *What is the thermal efficiency of the gas turbine jet engine?*

The reaction engine utilizes more of the energy of its fuel than the percentages used profitably by steam locomotives and gasoline automobile engines. However, its mechanical efficiency is dependent upon its speed and reaches a maximum when the engine is flying at the same velocity as the jet blast.

Q. *What is the rpm of the jet engine's turbine wheel?*

This varies in different engines and is dependent upon the diameter of the turbine wheel. It runs from about 11,500 rpm in the General Electric I-40 to 16,000 rpm in the G.E. I-16 and 18,000 in the Westinghouse 19-B.

Q. *Does the jet push interfere with the propeller pull on the Ryan "Fireball"?*

No, because the automatic propeller pitch control changes the propeller blade angle to attain maximum thrust at whatever speed is experienced.

Q. *Doesn't the compressor in the nose of the jet engine exhibit considerable drag in flight?*

No, this is not an important disadvantage. In the *Fireball*, the compressor windmills at 5,000 or 6,000 rpm when the plane is flying forward engine power.

Q. *Will a jet plane fly in a vacuum?*

The reaction principle, or jet propulsive thrust, would occur in a vacuum and power a plane as it does in air—actually with more effect because of the reduction of air resistance. However, the jet engine would not operate without a supply of oxygen to burn its fuel and thus provide the jet stream. Also, the air itself must be used to provide a jet stream. The rocket engine, carrying its own fuel and oxygen, would fly in a vacuum without difficulty.

Identification view of the Navy's Fireball, which is armed with four .50 caliber guns.

Q. *How is the jet engine lubricated?*

By a pressure spray or flow of mineral oil which is fed to the engine's three bearing assemblies.

Q. *How complicated is the jet propelled plane for the pilot to fly?*

The jet engine requires only four instruments and is actually simpler to operate than an aircraft piston engine. It does require special study so that a pilot can understand its points of difference in flight and operation from the conventional power plant.

Q. *Will the jet propulsion principle be used to spin propellers and helicopter blades by exhausting gas at the tips?*

Several interesting experiments are being conducted along these lines. Since the propeller and the helicopter blades move much faster than the actual air frames, they appear to be more advan-

tageous elements for taking advantage of the high speed characteristics of the jet propulsion effect.

Q. *How can a rocket engine be cooled in outer space where there is no available air?*

The fuel is first circulated around the combustion chamber where it absorbs the heat of combustion to cool the engine. This also serves to pre-heat the fuel.

Q. *What is the world's speed record?*

Six hundred sixteen mph—held by the British Gloster *Meteor*. This speed must be made within 375 feet from sea-level altitude.

Q. *How high a flying speed can the human system stand?*

Any speed can be endured by a human being provided that the acceleration and deceleration are within the bounds of human stamina. A person can be accelerated to 10,000 mph in five minutes without detrimental effects.

Q. *How high can a jet propelled engine fly?*

Within the earth's blanket of atmosphere. Theoretically, this extends to about 67,000 feet because at that altitude the air is so thin that it cannot be compressed by present devices.

Q. *How far can a jet propelled plane fly?*

If you fly at high altitudes and speeds, the jet propelled plane will be able to match the performance and range of any other conventionally-powered plane. At ordinary speeds and altitudes, the jet propelled plane has a shorter range due to its fuel consumption.

Q. *Why is it difficult for a jet propelled plane to land aboard a carrier?*

Because it is difficult to design a jet-propelled plane to take advantage of terrifically high top speeds and still retain low landing speeds necessary for restricted carrier operations. Also, at low speeds necessary for carrier landings, the jet engine is not flexible and is difficult to accelerate fast enough to safely take a "wave-off." This is due to the fact that the jet engine has a small diameter compared with a propeller and therefore handles less air at low speeds. At high speeds it makes up for this difference in cross sectional area by velocity and can accommodate from 4 to 8 times as much air as the conventional power plant.

Q. *Will the jet engine develop enough power to fly large transports?*

Yes, but this power development is contingent upon flight speeds. Therefore, in order to perform economically in large planes, the jet engine must be permitted to fly at relatively high speeds.

Q. *Could the jet propulsion engine be used to power other machines such as electric power plants?*

No, but the gas turbine, somewhat similar to the jet engine in principle, is now powering about 12 electric generating plants in the world with notable success.

Q. *When will jet propelled automobiles be available?*

Probably the disadvantages of the jet engines, such as torrid jet blast and high fuel consumption at low speeds, will preclude its use with automobiles. The gas turbine will have great promise for such use in the future.

Q. *Will jet propulsion be used in other forms of transportation?*

Possibly in water transportation. However, the jet engine's big brother, the gas turbine, may have good utility in automobiles, ships, trains, and power plants of the not too distant future.

Q. *Will atomic power be used with jet engines?*

This is a possibility which is limited by the development of practical harnessing of atomic energy rather than the jet engine. Any source of energy which will provide the jet engine with a high speed, high temperature jet stream will be useful to its operation.

Q. *Why wasn't the jet engine developed long ago?*

Although discovered 2,000 years ago, it was not brought to practical use because metals which could stand the high temperatures necessary to get useful work from the engine had not been discovered.

Q. *Do you think that a flight to the moon is possible?*

Theoretically yes, but at this time it certainly is not practically possible. In other words, we have the tools which could possibly be developed to make such a flight a reality in the future.

US MC

With the Reserves

2d Infantry Battalion, USMCR

2d Infantry Battalion, USMCR
485 Summer Street
Boston, Massachusetts
LtCol James J. Dugan, USMCR, Commanding

By LtCol James J. Dugan, USMCR

THIS BOSTON RESERVE BATTALION WAS RE-ACTIVATED in October 1946 and in spite of early optimism it was soon apparent that "their" veterans were in no hurry to re-enlist. Many of the old reliables of the prewar outfit had married and were not eligible; others were just tired of the military or had decided there was plenty of time to think about rejoining. The first three months were discouraging until Headquarters, USMC, removed the marriage restriction and permitted enlistments of men without prior military training. The 2d's troubles seemed over. A recruiting campaign was aimed at Boston's high schools, receiving in most instances fine cooperation from the school authorities.

If anything, the campaign was too successful. Suddenly one cold winter night, instead of the usual two or three applicants, there were 150 men wanting to enlist. Three information desks were set up. The more serious prospects were passed to an officer for interview. Parents' consent papers were given out—this saved much embarrassment. Some discharged Women Reserves volunteered to help handle the influx of would-be recruits, but even with this aid there were more present than could be handled.

This is the first of new series in the GAZETTE *designed to acquaint the regulars with what the reserves are doing. All organized reserve units are requested to forward news letters and photographs as often as the activities of their organization warrants.*

Competition from other military services then slowed recruiting and the next problem was to get those that had enlisted into uniform and their training started. The assigned armory was being rebuilt so facilities were limited at first. Now they are in pleasant contrast to such facilities with which prewar reserve units were familiar. The rebuilt armory offers fine lounge rooms, new band instruments, pool tables, recreation and athletic funds, and many other attractions to bring in and hold recruits.

As one prewar reserve puts it:

"With the start we now have and everything to work with, it seems that the future should be very bright. There is now a great contrast to the old reserve as I knew it; we had nothing, but actually built a high morale and produced some fine officers and men as their records show. This morale . . . took years to build but if enough of the former regulars and reserves come back in they certainly can lead the way to the youngsters now joining up."

17th Infantry Battalion, USMCR

17th Infantry Battalion, USMCR
Naval Armory
7600 East Jefferson Street
Detroit 14, Michigan
Maj Henry G. Totzke, USMCR, Commanding

By SSgt James M. Murray, USMCR

IN THE PAST FIVE MONTHS DETROIT'S 17TH Marine Infantry Reserve Battalion has grown from a handful of officers and men to a total strength of 183. This growth has been in spite of the many obstacles a new organization is likely to encounter. Obtaining publicity, requisitioning materials, and setting up files were but a few of the details.

Greatest difficulty was in giving physical examinations to prospective applicants. In order to do this, it was necessary to send recruits to an adjacent Navy unit which in its spare time cooperated by examining the 17th's men. Eventually the new battalion was able to procure a doctor,

convert a few reluctant marines into temporary corpsmen, make clerks and typists of others, and set up a complete recruiting office. Since this inauspicious beginning, legitimate corpsmen, typists, and clerical personnel have been added.

In the two hour drill period each Thursday night, the battalion is now able to process as many as fifteen new men. Enlistment includes indoctrination by a sergeant receptionist, a physical examination, fingerprinting, a mental examination, typing and signing the enlistment contract, and the swearing in of the applicant.

It is interesting to note the background of the men adjoining the Organized Marine Corps Reserve. The 17th's 22 officers are, of course, all former marines. Among the enlisted men, 70 are former marines, 68 have no previous military service, 14 are former Navy men, and 9 are ex-Army. The majority of the men with no previous military service are between the ages of 17 and 19 years. Almost half of the enlisted men are now either attending college or high school.

The equipment received by the 17th has been plentiful and in very good condition, including everything from typewriters to bazookas. With this equipment they have conducted schools on a variety of weapons, including BARs, flamethrowers, and machine guns. This training has been augmented by movies of a military nature, as well as platoon drills and exercises.

Marines joining the battalion will receive additional training by participating in week-end cruises aboard Navy ships. The Organized Naval Reserve has several ships stationed at the armory and present plans are that 15 per cent of the complement aboard ship will be marines. These cruises will be of short duration to the various cities about the Great Lakes.

The immediate plans of the battalion are to prepare for the coming two-week training period at Camp Lejeune, to form a 20-piece band, and to increase the training and recreation activities. Special officers and NCOs have been assigned these tasks and the 17th Marine Infantry Reserve Battalion claims to be well on its way toward becoming Michigan's finest military organization.

2d 105mm Howitzer Battalion, USMCR

Naval and Marine Corps Reserve Armory, 850 Lilac Terrace, Los Angeles, California
LtCol Alfred V. Jorgensen, USMCR, Commanding

By Sgt William D. Lansford, USMCR

In July 1946, LtCol Alfred V. Jorgensen of Newport Beach, California, received a letter from Marine Headquarters inquiring if he would be interested in the formation of the new Marine Corps Reserve. He replied in the affirmative. A

Reservists of Detroit's 17th Marine Infantry Battalion show their approval of the first pay call. Their pay is on the same scale as their active contemporaries.

First student to answer call for volunteers is sworn into 2d 105mm Howitzer Battalion.

month later Col Jorgensen received another letter from Washington, this time instructing him to form the 2d 105mm Howitzer Battalion, USMCR, consisting of Headquarters and Service Battery, at the Naval and Marine Corps Reserve Armory. On 9 September 1946, Col Jorgensen opened for business and shortly after, on September 19, one PlSgt John J. Reed, a veteran of four South Pacific engagements, volunteered to be the first enlisted man and Col Jorgensen had a battalion.

Right along about that time another ex-leatherneck, PFC James Lyons, also a veteran of the Pacific war, joined. By the end of September, the battalion had acquired a third enlisted man.

During October the number of officers grew to six. By December the outfit was up to 21 officers and 19 men. Then between the months of January and February, apparently because of the abolishment of restrictions against the enlistment of married men and former members of the other branches, the ranks of the enlisted men jumped to 53 and those of the officers to 27.

By the end of March the battalion had 26 officers and 78 men, and now in April, at the time of this writing, the 2d 105mm Howitzer Battalion can boast of being the largest artillery battalion in the Marine Corps Reserves, and the third largest reserve unit in the country.

The battalion can boast of many other things. It is situated in a large modern armory a little way out of the crowded city of Los Angeles. Within the armory there is an excellent swimming pool which is open every day and evening for the use of members of the battalion and their families. In the building there are also several bowling alleys and two basketball courts for the eager-beavers, as well as several billiard tables and a number of recreation rooms for the less eager beavers.

It has been the policy of the battalion to invite and provide entertainment for the wives and friends of the members. During the weekly meetings full-length movies are shown and refreshments are served.

But despite all these comforts and social activities, the battalion is not a recreation club. It was formed for a serious purpose and the organization is being handled in a serious, efficient manner.

A training schedule has been set for keeping the veteran members of the battalion informed and proficient in their work as marines. This same schedule has been extended to cover the training of recruits who have had little or no military experience. These men are being put through a rigid "boot" period which will hold them into real marines capable of serving side by side with their older, battle-wise brothers in case of an emergency.

In August the battalion goes to summer camp at Camp Pendleton for a fifteen-day period.

Fighter Squadron 132, USMCR

VMF 132, MAD, NAS
New York, New York
Maj Hyde Phillips, USMCR, Commanding

By 2dLt Edward R. Murphy, USMCR

THE ANNOUNCEMENT OF THE RECOMMISsioning of Marine Dive Bombing Squadron 132 as a Fighter Squadron at Floyd Bennett came in July of 1946. At first, personnel were slow in volunteering for the reserve. With the beginning of 1947, LtCol Ethridge C. Best, U. S. Marine Corps, commanding the Marine Air Detachment at Floyd Bennett Airfield, called in his staff and a sustained recruiting program was mapped out. The result of the Colonel's planning was the quick recruiting of many former enlisted personnel. In February Marine Air Squadron 132 reached its authorized strength of 45 pilots, 12 ground officers and 164 enlisted.

Upon attaining its full complement, VMF 132 had the distinction of being the second squadron in the entire Marine Air Reserve Training Command to reach full strength, and only missed by a few days the honor of being first.

Once VMF 132 was filled, the rush of applicants anxious for admission to the reserve program did not let up and a waiting list was necessarily established. This list has grown in proportion until, at this writing, it contains enough names to fill two additional squadrons. It is expected that authority will be granted LtCol Best to commission a second squadron.

February also saw the Marine Air Detachment move into new permanent quarters. Included under one roof are the following: Offices for both detachment and squadron administration, officers' ready room, parachute and flight issue room, indoor rifle range, and a fine club for enlisted personnel.

Excellent flying weather prevailed through most of the quarter and, as a result, the reserve pilots were able to fulfill most of the requirements of their flight syllabus and, in addition, were able to attend many constructive lectures, arranged by Capt Saul Millstein, Operations Officer, on engineering, navigation, and ground training.

Maj Franz C. Heckmann and his staff of clerks have taken over the administrative work of VMF 132 from the Marine Air Detachment and are handling most of the business of the squadron.

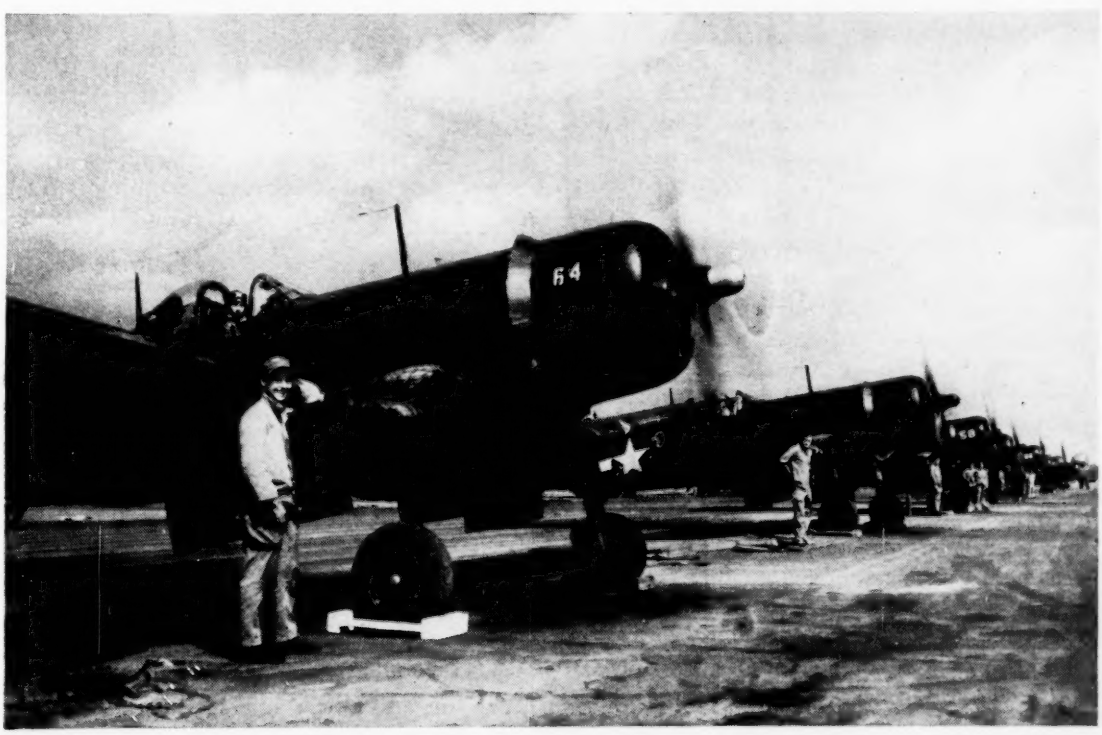
The month of April brought a new commanding officer to VMF 132. Maj Gerard M. Bruder, commanding officer of Marine Fighting Squadron 132 since its inception, found that his civilian occupation would not permit him to continue as commanding officer. Maj Bruder will remain as executive officer. Maj Hyde Phillips, the new commanding officer of VMF 132, has lost no time in becoming acquainted with personnel of the squadron and is planning for the future success and well being of its officers and enlisted men. Maj Phillips received the Distinguished Flying Cross "for heroism and extraordinary achievement" during his tour of the Solomons with the original Squadron 132.

Fighter Squadron 244, USMCR

VMF 244, MAD, NAS
Columbus, Ohio
Maj F. S. Hoffecker, USMCR, Commanding

ON 1 JULY 1946 VMF 244 WAS REORGANIZED at the Naval Air Station, Port Columbus, as a fighter-bomber squadron of the Marine Avia-

Corsairs of VMF 244 line up for the takeoff. SNJs are being used by the squadron for instrument flights, while link trainers are being used for instrument training.



Pilots of VMF 244 are briefed before taking to the air. Time flown consists of syllabus work, especially ground support, gunnery, division tactics, navigation.

tion Organized Reserve. The squadron, now flying Corsairs, saw action during the war as a dive bomber outfit. It first saw action in the Munda and Bougainville areas and later supported the Army in the Philippines.

Since its re-organization, VMF 244 has grown rapidly in size. It now has a full complement of 45 flight officers (and a sizable stand-by waiting list), 9 ground officers, and an ever-increasing number of enlisted men.

VMF 244 pilots flew approximately 1,700 hours from July, 1946 through March, 1947. Time flown in Corsairs has been on syllabus work, especially ground support, gunnery, division tactics, and navigation. Also SNJs equipped for instrument training are being used for instrument flights and the link trainers are being used for instrument training. In addition, pilots and planes of VMF 244 were in great demand in the summer and fall of 1946 for air show demonstrations, flying in twenty or more shows. There is every reason to believe they will be in even greater demand in the coming months.

In all the above flying, VMF 244 has built an excellent safety record. Not one person has been injured to date.

There has been a sharp increase in the number of enlisted men during the last few months. Many of these men who have experience and training in some line are now spending their drill periods as payroll clerks, flight clerks, mechanics, etc. In addition those with inadequate training are being given aviation technical training. Half of the drill schedules is devoted to class room material and half to practical application. Class room instruction includes courses in hydraulics, engines, propellers, carburetors, fuel and oil systems, instruments, radio, electricity, and ordnance.

Personnel of VMF 244 come from all sorts of civilian occupations. Since Port Columbus is only six miles from Ohio State University, a large portion of the squadron, about one-fourth, is made up of students who are keeping their flying skill and earning extra money at the same time.

In addition a steel mill superintendent finds time to fly with the squadron; two pilots on a charter air line flying out of Cleveland take a bus man's holiday every two weeks and keep their hands in on the Corsair; a college professor finds the semi-monthly drills a change from his regular duties; and an employee of the Public Housing Authority forgets the housing emergency when he climbs into his plane. USMC

New Developments

Artillery Reorganization . . .

IN LAST MONTH'S GAZETTE, *The New FMF* included a brief outline of the changes that will be made within the artillery regiment. These changes (now identified as the J(P) series artillery T/O) are based on two major modifications: the elimination of the battalion echelon, and an increase from four to six gun sections within each battery. Each Marine division will have an artillery regiment normally consisting of six batteries of 105mm howitzers, a 4.5-inch rocket battery, and a headquarters and service battery. Similarly, each Marine brigade will have an artillery battalion consisting of an H&S battery and three 105mm howitzer batteries. At least one-third of the batteries will train with and be prepared to use 155mm howitzers as alternate weapons.

The first and immediate *tactical* effect of the reorganization of the artillery regiment will be the increase in fire power from 32 to 36 guns. Also important is the greater flexibility of fires. Each battery will have sufficient fire control facilities to operate independently except that no meteorological functions will be performed—only when firing is controlled from the regimental echelon will metro corrected firing data be used. The battery instrument section provides for a sergeant instrument chief and two parties of a corporal and three PFCs or privates. The headquarters section of the battery includes a fire direction center supervisor, a horizontal control operator, a vertical control operator, and two computers. Three forward observer sections are provided, one of the forward observers being a qualified aerial observer as well.

This organization permits the battery to operate as a "battalion" of two 3-gun "batteries" in situations requiring two different fire support missions simultaneously. It also provides for continuous support while displacing.

The battery maintenance section is capable of 2d echelon maintenance. Major equipment items authorized the battery include the following:

6—105mm howitzers (M2A1 w/carriage howitzer 105mm M2A2)
6—quarter-ton 4x4s (jeeps)
4—ton-and-a-half 6x6s (one truck for the maintenance section, one for the instrument section, two for communications)
12—two-and-a-half ton, short wheel base, 6x6s (six as firing battery prime movers, six for the ammunition section)
4—radios, SCR 536
3—radios, SCR 608
5—radios, SCR 619
2—radios, An/MRC-6

When two or more batteries are combined operationally, a provisional battalion headquarters will be supplied from the regimental headquarters and service battery. This provisional battalion headquarters will include a group or battalion headquarters section, a communications section, an operations and fire direction section, a survey section, an ordnance and munitions section, and a motor section.

Certain enlisted personnel for these sections will be supplied by the operationally united batteries, as will most of the communications equipment.

The *administrative* functions formerly performed at the battalion level are divided between the batteries and the regimental H&S battery. In general, the battery now has the administrative responsibilities of a prewar battery or company. Most important of these are the preparation of muster rolls and pay rolls. All property is held by the batteries on memorandum receipt. Property accountability, personnel assignment and classification, court martial jurisdiction, and supervision of all material maintenance and training readiness will be performed at the regimental level.

The regimental headquarters and service battery retains all of its original functions plus those listed above. This echelon contains two provisional battalion headquarters capable of the operational and tactical control of up to three batteries. These provisional battalion headquarters will not assume any administrative functions, however, except on special order.

The artillery battalion of the Marine brigade may be compared to a smaller artillery regiment. The battalion headquarters will perform all the functions of the former independent battalion except those now assigned the firing batteries. US MC

TO THE EDITOR

Message Center

Control of Supporting Arms . . .

SIRS:

Capt Greene's discussion of coordination and unification of control of supporting arms, in the April GAZETTE, reflected some refreshing thought on this much hashed-over question. His proposals are well presented, down to and including the battalion. At the company level, however, I believe the Captain is being overly optimistic. Due to the American system of preparing for a war *after* it has started, it's tough enough to teach a "90 day wonder" lieutenant to be a passable artillery forward observer, let alone an accomplished naval gunfire spotter and forward air controller. No doubt that it can be done in peacetime, with lieutenants who are salty enough to distinguish readily between a battleship and a destroyer escort, and even have the time and inclination to read a few books on close air support.

Come war, and this paragon who was able to handle all three supporting weapons in peacetime, is suddenly a field officer, and we must start all over again with such basic teachings as lacing the leggings with the "hooks on the outboard side."

Whatever schemes are proposed in the postwar era, we must keep in mind that they have to be taught on a mass production basis, under the stress of mobilization, and applied under the stress of combat.

A. L. BOWSER, JR.
LtCol, USMC.

Uniform Improvements . . .

DEAR SIR:

With reference to Capt Paul McAllister's letter on uniform improvement in the January GAZETTE I second the motion for a snappier-looking uniform. But I am inclined to disagree with the Captain where he feels that the Marine Corps should do away with their regulation field scarf and adopt the Army mohair tie. Instead of doing away with what the Captain calls a limp strip of cotton why not improve it by making the field scarf out of the same khaki material as our khaki trousers, or by issuing a supply to each man so that he might change at *least* every other day. But if the Marine Corps ever does start issuing Army ties to marines and making more so-called sensible and serviceable lines to the uniform as a whole, they are liable to be approached someday with a "Hi Soldier!"

C. E. REKDAHL,
Corporal, USMC.

Ignored Engineers . . .

DEAR SIRS:

This is the first time I've ever attempted to get a legal bitch into print, and it comes to a boiling point only because of continual misinformation; e.g., quote from March issue of GAZETTE article by Capt John DeChant's *Devil Birds:* "Early Jap air and sea opposition mounted quickly. The situation finally forced the carriers and the small naval support force to withdraw. By sunset on 10 August, the sea forces were out of Sealark, bound for the safety of Noumea. That left the Marines on their own with only part of the supplies and no air support. *That same day, with the help of captured enemy rollers and equipment, the Seabees began expansion and improvement of the enemy airfield. In almost coolie fashion and under constant fire, they extended the runway to* 4,000 *feet in six days.*"

Now this is what I want to get at and correct, if possible. In the first place, please remember "the 1st Marine Engineer Bat" landed with the 1st Divvy. We were a part of that wonderful division. If Capt J. DeChant saw anybody out on Henderson Field, it was the First Engineer Bat (minus B Company in Samoa). We were the "coolies" he so aptly described in his story "Devil Birds." We were the men who put the field in operation—and our tools, about a dozen picks, 5 axes, two crosscut saws, and a few hand saws, we stole from Jap stores, *to cut down coconut trees with,* plus wonderful officers who were not engineers but line duty officers, but adapted themselves to conditions—such as Maj "Hank" Crockett, Capt "Jungle Jim" Joyner, Capt Austin S. Iglehart, and a bunch of men with more guts than brains. We not only maintained the field but took up our position and fought alongside such illustrious fighting outfits as 1st Para Bat [and] 1st Raiders, we participated in every action on the island with the exception of the Tenaru—21st August.

We, A Co, 1st Engineering Bat, were known as "Vandy's Own"—and now the climax—The "Cub Bat" as they were first known did not land on the island with the First Divvy on 7 August 1942, but came on the island some time around September 1st, 1942.

I hope this will in some way help to straighten out this bad information and give the Engineers their due. They were fighting Marines first, Engineers second.

A. J. SPOLTORE.

Service Schools . . .

GENTLEMEN:

The article by Maj John J. Wade, Jr., in the April issue, *Are Service Schools Up to Date?* was excellent. In a small outfit like the Marines, all officers can't be specialists, for what we lack in numbers must be made up in versatility. But there is a limit to versatility when a man becomes a "Jack of all trades and master of none."

Instruction is a profession which takes long training, and instruction will suffer if officers are assigned to teaching only because they have had experience in the field. It is true that instructors become stodgy and that new blood, with new ideas, must be continually drawn into any school, but it must be done gradually.

Rotation of officers is very essential: in wartime to distribute the hardships and in peacetime to give well-rounded officers. But rotation should not be done, as it sometimes was in the last war, in a wholesale manner to cause disruption of progress until the new faculty had finally worked out for themselves a schedule and learned how to instruct. The Army, by 1944, had developed a school for instructors, known as the "Charm School," to teach teachers to teach. Officers returning from overseas had first to pass this course before being assigned as instructors.

This same procedure applies to most other headquarters staff duties. I was a liaison officer, reporting to HQMC on the development and uses of new weapons and equipment in 1943 when the veterans of Guadalcanal were first rotated back to the states for duty. Many of these men were imbued with the idea that they had learned all there was to know about warfare, past, present, and future, and that it was their duty to come back to "give the word" to those officers in the states who were sitting on their duff with soft staff jobs.

They were eagerly questioned and their words respectfully recorded. But it was soon found that many of them were basing their opinions only on what they had actually seen at Gaudalcanal. They had not had the opportunity to read the secret reports of the Army on experiences in North Africa, New Guinea, or the Aleutians, nor the British in Burma or Tripoli. Nor had they any inkling of the type of terrain the Marines would operate on in the near future.

Therefore, a sudden influx of rotated officers, with experience limited only to one type of warfare in one operation could result (and probably did) in a lopsided emphasis on instruction in our service schools, and affected the decisions of various boards, and even policies emanating from Headquarters. For these reasons I am in hearty accord with Maj Wade's suggestion that a corps of professional instructors and staff officers be established with sufficient rotation (he suggests one year in four) to prevent this corps becoming too cloistered.

ROBERT S. MAYO,
Major, USMCR.

Satisfied Reader . . .

DEAR SIRS:

As a POW I was very much interested in the account of the 4th on Corregidor. The stories of the Pacific to one out of circulation are interesting. I hope they keep coming. Articles on weapons of both American and foreign make are very instructive and of great interest to more than is realized. When I was interviewed on my return I was asked "had I done any reading about the Corps" since my return. It was the GAZETTE that helped me "get back to battery."

EDWARD D. SMITH,
MSgt, USMC.

Veteran Subscriber . . .

(*As a reader of the* GAZETTE *for over thirty years, QMSgt Burns was asked for suggestions to improve the magazine.*)

None, it is already well edited and always contains articles of valuable and historical interest. I should not wish to miss a copy of the publication, and although the weapons and tactics used in the service now are vastly different from those employed during my enlistments, with the help of the GAZETTE I have no difficulty in spanning time and in reaching an intelligent understanding of the equipment, functions, and personnel of the Corps.

With very best wishes for your continued success, I am,

J. C. BURNS,
QMSgt, USMC, Ret'd.

Boots . . .

DEAR SIR:

We marines here at Pearl Harbor are very interested in Maj J. A. Donovan's letter on field shoes in the March GAZETTE. We are highly in favor of the Marine version of the Army paratroop boot. We need to adopt something that can be used for the field and dress.

HUGH W. DAVIS,
PFC, USMC.

The GAZETTE *wants its readers to use these pages not only for comments and corrections on past articles, but also as a discussion center for pet theories, battle lessons, training expedients, and what have you. This is not a "gripe" column; what is wanted are contributions designed to promote discussion on topics of professional importance to Marine Corps policy and thought. Correspondents should include their name, rank, and address, but the signature will be withheld if requested.*

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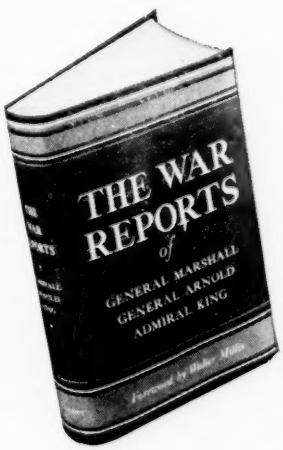

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The Massachusetts Mutiny

By Capt Lewis Meyers

THE WIDELY PUBLICIZED use of marines at Alcatraz last year had a century-old precedent in Massachusetts. In 1824 in the Massachusetts State Prison mutiny the 30-man detail led by Maj R. D. Wainwright did not fire a shot, yet the incident was a severe test of courage and discipline. The marines met the requirements and thus saved many lives, including their own.

The trouble in the prison started when three convicts were sentenced to a public whipping for disciplinary reasons. While waiting in solitary confinement one of these prisoners mousetrapped a guard and locked him in the cell, then released the other two convicts. The three had reached the dining hall when the alarm was sounded; they were joined by a mob of prisoners who rushed from the workshops armed with knives, clubs, hammers, chisels, and other hasty weapons. A contemporary account describes them as "a band whose strength, vileness, and reckless daring could hardly be equalled."

This emergency was too much for the prison personnel—except for one guard who remained calm and took steps as needed. First he sent a request for help to Maj Wainwright, the CO of marines at the nearby Navy Yard. Then this guard entered the dining hall alone, armed only with a rattan swagger stick. The prisoners told him they would not disperse until the flogging sentence was remitted; an argument started among them as to killing him. In this interesting situation the guard saw the feet of the arriving marines filing past the tiny, barred windows of the dining hall. He made a strategic withdrawal.

The prison officials wanted Wainwright's men to fire in through the windows, first with just powder, then with ball until the mutineers retreated. The major, veteran of 17 years in the Corps, had another plan—a daring but saner method.

He marched his troops into the long, dingy dining hall and halted them in formation at the opposite end of the room from the convicts. To the milling mob facing him he declared he would not leave the room alive until they went back to work. When no one made a move, Maj Wainwright ordered the marines to load, with each man holding the bullet aloft before loading. This visible proof of his purpose brought a rumble of rage from the prisoners and it was obvious that they could overwhelm the marines after the first volley. With the command to aim, the major stepped in front of his men. The leading convicts insisted they would fight it out unless the flogging was cancelled.

Maj Wainwright took out his pocket watch while the marines kept their pieces aimed. "You must leave this hall," Wainwright said. "I give you three minutes to decide. If at the end of that time a man remains, he shall be shot dead. I speak no more."

This tense tableau lasted more than two minutes—the seconds ticking off on the watch held up in the tall officer's hand. At one end of the room the thirty muskets leveled—at the other end the motionless, glowering convicts. Then the guards watching at the windows saw the prisoners in the rear begin to move out slowly, followed by a few more. In the final half-minute panic swept the mob. All the mutineers crowded out the door before the major's watch reached his deadline.

"Thus," to quote the *New England Galaxy*, "the steady firmness of moral force, and the strong effect of deliberate determination, cowed the most daring men, and prevented a scene of carnage which would have instantly followed the least precipitancy or exertion of physical force by the officers or their subordinates." US MC

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